

Home Science
DEPARTMENT OF APPAREL & TEXTILES
M.Sc and Ph.D programmes
List of courses

S.No	Course No.	Title of the Courses	Credits
MAJOR COURSES			
1.	TAD 501	Fibre Chemistry	3(2+1)
2.	TAD 502	Textile Quality Analysis	3(2+1)
3.	TAD 503	Advanced Textile Design	3(1+2)
4.	TAD 504	Advanced Pattern Making	3(1+2)
5.	TAD 505	Historic Textiles and Costumes	3(2+1)
6.	TAD 506	Fashion Draping and Custom Clothing	3(0+3)
7.	TAD 507	Apparel Quality Analysis	2(1+1)
8.	TAD 508	Advanced Dyeing & Printing	2(1+1)
9.	TAD 509	Textile Finishes	2(1+1)
10.	TAD 510	Computer Aided Textile & Apparel Designing	3(1+2)
11.	TAD 511	Home Textiles	3(1+2)
12.	TAD 512	Socio-Psychological Aspects of Clothing	2(2+0)
13.	TAD 513	Textile Industry & Trade	2(2+0)
14.	TAD 514	Knitting Technology	2(1+1)
15.	TAD 515	Fashion Accessories	2(1+1)

1 6.	TAD 516	Consumer Behaviour-Textiles & Apparel	2(1+1)
1 7.	TAD 517	Special Project Work	1(0+1)
1 8.	TAD 601	Functional Clothing	3(2+1)
1 9.	TAD 602	Technical Textiles	3(2+1)
2 0.	TAD 603	Textile Ecology	3(3+0)
2 1.	TAD 604	Sourcing and Globalization	3(2+1)
2 2.	TAD 605	Textile Auxiliary	2(1+1)
2 3.	TAD 606	Product Development	3(1+2)
2 4.	TAD 607	Textile Conservation	2(1+1)
2 5.	TAD 608	Colour Application in Textiles	2(1+1)
2 6.	TAD 609	Apparel Industry Management	2(1+1)
2 7.	TAD 610	Non-Woven Textiles	2(2+0)
2 8.	TAD 611	Recent Advances in Textile and Apparel Designing	2(2+0)
2 9.	TAD 612	Special Project	2(0+2)
3 0.	TAD 591	Master's Seminar	1(1+0)
3 1.	TAD 599	Master's Research	20

3 2.	TAD 691	Doctoral Seminar I	1(1+0)
3 3.	TAD 692	Doctoral Seminar II	1(1+0)
3 4.	TAD 699	Doctoral Research	45

MINOR COURSES*

- Department of Resource Management and Consumer Sciences
- Department of Human Development and Family Studies
- Department of Home Science Extension & Communication Management
- Department of Entomology

S.No.	Course No.	Title of the Courses	Credits
SUPPORTING COURSES			
1.	HSC 500	Research Methods in Home Science	3(2+1)
2.	STAT 500	Statistical Methods	3(2+1)
3.	HSC 600	Research Project Management	3(2+1)
4.	STAT 600	Data Processing	2(1+1)
NON-CREDIT COMPULSORY COURSES			
1.	PGS 501	Library and Information Services	1(0+1)
2.	PGS 502	Technical Writing and Communications Skills	1(0+1)
3.	PGS 503 (e-Course)	Intellectual Property and its Management in Agriculture	1(1+0)
4.	PGS 504	Basic Concepts in Laboratory Techniques	1(0+1)
5.	PGS 505 (e-Course)	Agricultural Research, Research Ethics and Rural Development Programmes	1(1+0)
6.	PGS 506 (e-Course)	Disaster Management	1(1+0)

M.Sc : Minor courses - Any one discipline from the list

Ph.D : Minor courses and seminar - Any one discipline from the list

COMPULSORY COURSES

S.No	Course No.	Title of the Courses	Credits
1.	TAD 501	Fibre Chemistry	3(2+1)
2.	TAD 502	Textile Quality Analysis	3(2+1)
3.	TAD 503	Advanced Textile Design	3(1+2)
4.	TAD 504	Advanced Pattern Making	3(1+2)
5.	TAD 507	Apparel Quality Analysis	2(1+1)
6.	TAD 513	Textile Industry and Trade	2(2+0)
7.	HSC 500	Research Methods in Home Science	3(2+1)
8.	TAD 591	Master's Seminar	1(1+0)
		Total	20(12+8)

TAD 501 FIBRE CHEMISTRY

2+1

Objective

To acquaint student about the polymer and chemistry of textiles fibers and impart them knowledge about structure-property relations of textile fibers and acquaint with recent development in fibers.

Theory

UNIT I

Chemistry of polymers- Polymerisation, types, degree & characteristics; Structure of textile fibres- general, molecular bonding, length, orientation, and requirements of fibre forming

substances.

UNIT II

Structure-property relations of the fibres - repeating units, bonds, reactive groups and reactions of cotton, viscose rayon, silk, wool, linen, polyester, acrylic, spandex and minor fibres; action of heat, light, bleach and micro-organisms on different fibres; commercial processes of fibres.

UNIT III

Bi-component & biconstituent fibres- types of configurations & characteristics.

UNIT IV

Study of new fibres; Blending –principles, technology & types.

Practical

Fibre testing: cross sectional view of cotton, wool, silk, polyester and acrylic Chemistry of cellulose , protein and synthetics– effect of heat, acid, alkali, bleaches and solvents; detection of damage caused to cellulose; Quantitative analysis of fibre blends and mixtures; Visit to textile analysis lab.

Suggested Readings

Andrea Wynne 1997. *Textiles*. Macmillian.

Bernard P Corbman 1983. *Textiles - Fiber to Fabric*. McGraw-Hill.

Lyle DS.1976. *Modern Textiles*. John Wiley & Sons.

Marjory L. Joseph. 1966. *Introductory Textile Science*. Rinehart & Winston.

Vilensky G. 1987. *Textile Science*. CBS.

Wingate IB. 1984. *The Fabrics - Their Selection*. Prentice Hall.

TAD 502

TEXTILE QUALITY ANALYSIS

2+1

Objective

To develop an understanding of methods and techniques used to analyze textile fiber, yarn and fabrics for end – use performance, different testing equipments, their underlying principles and the internationally accepted standards, test methods and the language of measurements, various structural properties of textile and relate them to end use fabric performance and product and analyse and interpret the results and predict the general textile.

Theory

UNIT I

Importance of textile testing, standardization and quality control, functions of BIS and other standards.

UNIT II

Sampling techniques- fibre, yarn & fabric; Moisture relations in textiles- effect of moisture, humidity on properties of textiles,

standard conditions of testing.

UNIT III

Fibre testing - Length, linear density, maturity; Yarn testing – yarn number, single & lea strength, twist, crimp & evenness.

UNIT IV

Fabric testing –weight, thickness, strength – breaking, tear & bursting; abrasion resistance – flat, flex; Pilling; crease recovery; stiffness; drapability; air permeability; thermal properties; flammability & assessment of other safety aspects in textiles; water permeability – repellency, wicking and dimensional stability; comfort & fabric handle measurement.

Practical

Fibre testing – Staple length, effective length, linear density, maturity ;Yarn testing – yarn number, twist, crimp, evenness and strength ; Fabric testing - weight, thickness fabric count, balance, strength – breaking, tear & bursting; abrasion resistance – flat, flex; pilling; crease recovery; stiffness; drapability; air permeability; thermal properties; water permeability, wicking and dimensional stability; Processing & statistical analysis of the test data.

Suggested Readings

AATCC Technical Manual. 1966. Vol. 68. USA American Association of Textile Chemist.

AATCC Technical Manual. 1993. Vol. 69. USA American Association of Textile Chemist.

AATCC Technical Manual. 1995. Vol. 70. USA American Association of Textile Chemist.

AATCC Technical Manual. 1998. Vol. 73. USA American Association of Textile Chemist.

Angappan 1987. *Textile Testing*. SSM Institute of Technology, Komarapalayam.

Booth JL. 1983. *Principles of Textile Testing*. Butterworth.

ISI Hand Book of Textile Testing. 1982. ISI.

TAD 503

ADVANCED TEXTILE DESIGNING

1+2

Objective

To develop knowledge about different looms, types of weaves, analyze different weave patterns and learn principles of creating design through weaving.

Theory

UNIT I

Shuttleless looms- projectile, rapier, air jet, water jet weaving;

multiple- shed loom, automatic controls in modern looms & scope of modern methods of weaving; detailed pre-weaving processes.

UNIT II

Study of design, draft & peg plan for different weaves; weave calculations; advantages & disadvantages.

UNIT III

Complex & fancy structures – leno, crepe, double cloth, honey comb, mock-leno, diaper, diamond, dobby, warp and weft figuring, terry and pile, huck –a-back.

UNIT IV

Dobby & jacquard patterning devices; methods of making carpets.

Practical

Weaving- Preparation of draft plans, peg plans etc. for all weaves ;Analysis of woven samples ; Weaving samples of various weaves; Developing designs for weaving- motif preparation and placement, colour and texture plans; Documentation of traditional and modified textile designs and development of textile design library.

Suggested Readings

Grosicik 1975. *Watson's Textile Design & Colour*. Butterworths.

Grosick ZJ. 1980. *Watson's Advanced Textile Design*.

Universal Publ.

Grosick ZJ. 1989. *Watson's Advanced Textile Design - Compound Woven Structures*. Universal Publ.

Marjory Joseph 1972. *Illustrated Guide for Textiles*. Rine Hort & Winsoten, New York.

Radha Krema 1971. *Manual of Non Wovens*. Textile Trade Press.

Sen Gupta 1959. *Weaving Calculations*. DB Taraporawala Sons.

Talukdar MK. *Weaving Machines, Mechanism and Management*. Mahajan Publ.

TAD 504

ADVANCED PATTERN MAKING

1+2

Objective

To impart indepth knowledge of style reading pattern making and garment construction techniques, enable students to make advance pattern and obtain perfect fit and harmony between the knitted fabric and design of the garment.

Theory

UNIT I

Advanced techniques of pattern making - incorporating style lines & fullness.

UNIT II

Principles of contouring, surplice/off shoulder and halter designs; built-in necklines, cowls and collars.

UNIT III

Skirts, advanced sleeve variations, exaggerated armholes, pockets, bias cut dresses.

UNIT IV

Jackets, types of pants; pattern adoption to knits.

Practical

Procedures used in the development of slopers and patterns ;Developing dartless slopers; Princess line variations ; Blouses; Halters and surplice;Vests and their types; Collars; Sleeves- kimono and raglan variations; Skirts; Pants- pant length variations, bell bottom pants, bodyfitting pants, and other types; application of pattern making techniques to garment designing and construction.

Suggested Readings

Bane A .1996. *Creative Clothing Construction*. MC Graw-Hill.

Connie Amaden-Crawford 1989. *The Art of Fashion Draping*. Fair Child Publ.

Janine Mee & Michal Purdy 1987. *Modelling on the Dress Stand*. BSP Professional Books.

Natalie Bray 1994. *Dress Fitting*. Blackwell.

TAD 505

HISTORIC TEXTILES AND COSTUMES

2+1

Objective

To make them aware of the historical development in western textiles and costumes from ancient world to 21st century and acquaint them about male and female textiles and costumes of India and other countries.

Theory

UNIT I

Study of traditional dyed, printed, embroidered and non-woven textiles of America, China, Egypt, France.

UNIT II

Study of traditional dyed, printed, embroidered and non-woven textiles of Greece, Japan and Rome – fibre content, fabrics, motifs, colours, dyes and designs used.

UNIT III

History and evolution of traditional costumes of America, China, Egypt, France.

UNIT IV

Greece, Japan and Rome through ages for women and men including the accessories- head dresses, jewellery, footwear and their significance in socio-economic status of the society.

Practical

Collection of traditional textile print & surface designs of the above countries and documentation; Designing textile surface with combination of motifs of different countries; Documentation of various styles of men & women's garments of the above countries; Designing outfits for men & women to suit to the current trends; Visit to a museum.

Suggested Readings

- Annalce Gold.1987. *One World of Fashion*. Fair Child Publ.
- Blanche Payne. 1965. *History of Costumes from the Ancient Egyptian to the Twentieth Century*. Harper & Row.
- Jack Cassin-Scott. 1994. *The Illustrated Encyclopedia of Costume and Fashion*. Studio Vista.
- John Peacock. 1996. *A Complete Guide to English Costume Design and History - Costume 1066–1990's*. Thames & Hudson.
- Pamela Stecker. 1996. *Fashion Design Manual*. Mac Millan.

TAD 506 FASHION DRAPING AND CUSTOM CLOTHING 0+3 **Objective**

To enable student to make pattern from sketch/photograph and enable them to obtain perfect fit and harmony between the fabric and design of the garment.

Practical

Draping, trueing and stitching– dartless shirt, surplice front, bustier; Draping and stitching skirts; Draping collars, sleeves,lowered exaggerated armhole sleeve; Cowls; Flounces, ruffles and peplums; Dresses – sundress and sculptured dress; Draping knits; Designing custom clothing;. Analysis and presentation.

Suggested Readings

- Bane A. 1996. *Creative Clothing Construction*. Mc Graw-Hill.
- Connie Amaden-Crawford. 1989. *The Art of Fashion Draping*. Fair Child Publ.
- Janine Mee & Michal Purdy. 1987. *Modelling on the Dress Stand*. BSP Professional Books.
- Natalie Bray. 1994. *Dress Fitting*. Blackwell.

TAD 507 APPAREL QUALITY ANALYSIS 1+1 **Objective**

To familiarize students with the different apparel quality standards, their underlying principles and the international accepted standards and test methods and develop ability to analyze and interpret the results and predict the general quality control.

Theory

UNIT I

Quality control- scope and functions of quality control; Quality specifications and standards in raw material purchasing, quality control in spreading, cutting and bundling products.

UNIT II

quality factors in sewing, pressing, folding & finishing; quality aspects of trims and fashions.

UNIT III

Standards- sources of application; national and international organisation for standards.

UNIT IV

Inspection techniques; quality auditing system.

Practical

Visit to an apparel industry; Inspection of raw material – classification and analysis of fabric defects; Study of specification sheets - various garments; Analysis of sewing & fasteners quality; Study of quality auditing system in the industry; Quality analysis of selected garments available in the market.

Suggested Readings

Gerry Cooklin. 1991. *Introduction to Clothing Manufacture*. Blackwell. Gerry

Cooklin. 1997. *Garment Technology for Fashion Designer's*. Blackwell.

Jacob Solinger. 1980. *Apparel Manufacture*. Van Nostrand Reinhold.

Latheam Barbara & Carr Harold 1999. *The Technology of Clothing Manufacture*. Blackwell Science.

Pradeep V Mehta. 1998. *Managing Quality in Apparel Industry*. New Age International.

Ruth Glock. 1990. *Apparel Manufacturing*. Macmillan Publ.

TAD 508

ADVANCED DYEING & PRINTING

1+1

Objective

To understand the theory of dyeing in relation to various classes of dyes and its application, inculcate awareness of the different methods of printing and appreciate the technical advantages of each and develop technical competency in printing with different dyes on different fabrics.

Theory

UNIT I

Concept of colour and its relation to light; classification and types of dyes/colouring matter.

UNIT II

Chemistry of dyes and pigments- composition, structure, properties, affinity towards fibres, method of application, fixing, after treatments and fastness properties.

UNIT III

Eco-friendly natural dyes and role of mordants; advanced dyeing techniques.

UNIT IV

Printing auxiliaries; advanced printing techniques; assessment for colour fastness.

Practical

Preparation of shade cards with various class of dyes and colour matching; Natural dyes – Dyeing with different mordants; advanced techniques of fabric printing; theme based project works.

Suggested Readings

Hall AJ. 1955. *Handbook of Textile Dyeing & Printing*. The National Trade Press.

Joyce Story. 1974. *The Thames & Hudson Manual of Textile Printing*. Thames & Hudson.

Shenai VA. 1994. *Technology of Dyeing*. Sevak Publ.

Shenai VA. 1985. *Technology of Printing, Technology of Textile Processing*. Vol. IV. Sevak Publ.

Sule AD. 1997. *Computer Colour Analysis Textile Application*. New Age International.

Vidyasagar PV. 1998. *A Handbook of Textiles*. Mittal Publ.

Vilensky G. 1987. *Textile Science*. CBS.

TAD 509**TEXTILE FINISHES****1+1****Objective**

To study the chemicals used in textile processing from sizing to finishing, along with the essential properties of raw materials used in their manufacture and study the recent developments in various finishing processes.

TheoryUNIT I

Finishing – Concept, scope & importance; Functional finishes – soil repellent, soil resistant, soil release; antistatic, anti-pilling; wash and wear; crabbing, decatizing, water proof & repellency, mildew-proof; flame resistant and flame proof; anti-bacterial.

UNIT II

Eco-friendly finishing with enzymes; comfort imparting finishes with reference to the application, uses, characteristics, problems and evaluation. UNIT III

Textured yarns & fabrics; finishing of blended fabrics. UNIT IV

Recent advances in finishing.

Practical

Identification of finishes; Preparation of fabric for finishes; application of selected finishing agents and their assessment; Eco-friendly finishing of textiles; Assessment of properties of the finished fabrics ;Study of labels pertaining to finishes; Visit to processing and finishing units

Suggested Readings

- Bernard P Corbman. 1983. *Textiles - Fiber to Fabric*. McGraw-Hill. Nisbel H. 1978. *Grammer of Textile Design*. D.B. Taraporevale Sons. Prayag RS. 1988. *Textile Finishing*. Sri T Printers.
- Shani. 1976. *Chemistry of Textile Axillaries*. Sevak Publ.
- Shenia. 1995. *Technology of Bleaching & Mercerizing*. Sevak Publ.
- Vaidya A & Trivedi 1975. *Textile Auxiliaries & Finishing Chemicals*. ATIRA, Ahemadabad.
- Vilensky G. 1987. *Textile Science*. CBS.
- Wynne A. 1997. *Textiles*. Macmillian.

TAD 510 COMPUTER AIDED TEXTILE&APPAREL DESIGNING 1+2
Objective

To introduce students to the various Textile and Apparel Designing designing concepts through CAD and introduce them about various advanced Textile and Apparel Designing software packages and develop the creativity of the students in use of 3D softwares.

Theory

UNIT I

Ideal workstation for CAD- Selection of suitable hardware & software; role of computers in Textile and Apparel Designing production.

UNIT II

Types of images and characteristics; saving of images; colour ways in computers, creation of new designs for textile surface - planning for various weave designs – stripes, checks etc; leading to application and change of fabric texture, print and colour.

UNIT III

Creation of designs in apparel; texture variation by using effects like embossing, blooming, transparency and translucent look on a garment.

UNIT IV

Use of 3 D softwares for customisation of created designs as per end uses.

Practical

Revision and practice on CAD commands; Creating stripes and checks using various commands; Creating weave library and assigning weaves to the designed stripes and checks for weaving ;Introduction to commands from different tool groups- file menu, freehand tools, geometric tool, selection tool, selection utility tool, colour utilities tool and general utilities tool; Developing motifs by scanning and drawing using the CAD commands; Creating full design/ repeat using drop devices; Creating weaves and storing in Jacquard weave library; Assigning weaves to the design plan. Learning print commands- simulation and graph/ point paper; Developing a computer aided portfolio of different motifs; Introduction to Prima Vision software; Command bars and

assistants; Menu bar and options; Drawing tools; Colour rendering ;Fill, pattern and repeat; Creation of Special effects Layers and layer settings; Introduction to draping mode; Outlining, creation of grid and editing the object; Draping scanned pictures; Texture mapping and creating effects; Development of library and printing draped figures.

Suggested Readings

Davis L Msrirn. 1980. *Visual Design in Dress*. Prentice Hall.

Prakash K. 1994. *Impression – A Classic Collection of Textile Designs*.

Design Points.

Prakash K. 1995. *Traditional Indian Motifs for Weaving & Textile Printing*.

Design Points.

Rene Weiss Chase 1997. *CAD for Fashion Design*. Prentice Hall.

Winfred Aldrich 1992. *CAD in Clothing & Textiles*. BSP Professional Books.

Yates MP. 1996. *Textiles – A Handbook for Designers*. W.W. Norton.

TAD 511

HOME TEXTILES

1+2

Objective

To develop awareness about different home textiles and furnishing and acquaint students about education, care and maintenance of different home textiles.

Theory

UNIT I

History and evolution of household textiles and furnishings, importance and their functions.

UNIT II

Study of various household textiles and furnishing; Properties and application; Non-woven furnishing materials.

UNIT III

Study of various styles of household textiles and furnishing and their accessories.

UNIT IV

Selection, care and maintenance of different household textiles; floor coverings, rugs and carpets; Types and role of under linings in draperies.

Practical

Study of various household textiles-fibre content, yarn type, weave, design and finish. Bed linen, towel, table napkins, kitchen aprons and dusters, table mats; types of curtains & draperies & valences; Slip covers, bed

spreads, table linen; Diwan, cushions, sofa covers and bolsters; development of theme board and Project work.

Suggested Readings

Brilliant J. 1986. *The Soft Furnishing Book*. Conran Octopus.

Macalls S. 1972. *Sewing in colours, Home-making, Tailoring, Mending, Soft Furnishing*. Hawlyn.

Naik Shailja D. 1996. *Traditional Embroideries of India*. A.P.H. Publ.

Pat Jones 1979. *Creative Sewing - Household Linen*. A Studio Vista Book.

Rutt Anna Hong 1967. *Home Furnishing*. John Wiley & Sons.

Taylor P. 1990. *Computers in Fashion Industry*. Heinemann.

TAD 512 SOCIO-PSYCHOLOGICAL ASPECTS OF CLOTHING 2+0

Objective

To study the psychological effects of clothing on the individual in social situations and develop the understanding about self esteem and clothing symbolism.

Theory

UNIT I

Origin of clothing, use of clothing among primitive people; Functions and theories of clothing; Clothing in relation to culture.

UNIT II

Psychological aspects of clothing-self respect, self-enhancement, self expression, gender desirability and individuality; Socio-psychological aspects of clothing among children; significance of uniforms and national costumes.

UNIT III

Clothing symbolism, fashion, fad, custom, tradition, culture contact, status, youth, education, social agitation of women and technology and role of legislation.

UNIT IV

Clothes for conformity, mobility, aesthetic appearance; Health and sanitation related to clothing.

Suggested Readings

Cranz RLM. 1972. *Clothing Concepts*. Collier Mcmillan.

Horn MJ. 1981. *The Second Skin – An Interdisciplinary Study of Clothing*. Hughton Miffin.

Marion S & Hill House 1963. *Dress Selection & Design*. The Macmillan. Mary Kefgen & Phyllis 1971. *Individuality in Clothing Selection & Personal Appearance*. The Macmillian Co.

Ryan MS. 1966. *Clothing - A Study in Human Behaviour*. Winston.

TAD 513 TEXTILE INDUSTRY AND TRADE 2+0

Objective

To enable the students to recognize the place of textile industry in

the Indian economy, industry trends and develop awareness about the standardization of textile goods, consumer agencies and services.

Theory

UNIT I

Textile industry- history and development.

UNIT II

Status of textile industry in India - cotton, wool, silk, rayon, jute, handlooms, and knitting industry; Government Textile & Clothing policies. UNIT III

Textile Research Associations; Apparel Export promotion Council, Textile crafts councils.

UNIT IV

Study of Apparel parks, GATT, TUF, ISO 9000 & ISO 14000 standards

Suggested Readings

Karpan 2004. *Change in Trends in Apparel Industry*. Abiskeh Publ.
Kathryn Moore Greenwood 1978. *Fashion Innovation & Marketing*.
Macmillan Co.

Kitty Dickerson 1995. *Textiles & Apparels in Global Economy*.
Merrill Prentice Hall.

TAD 514

KNITTING TECHNOLOGY

1+1

Objective

To familiarize students with special techniques of knitted fabric production and creation of new designs and acquaint them with the art of handling different fabric and styles using knits.

Theory

UNIT I

Advance study of knit fabrics made on warp & weft knitting machines; different types of knitting machines and knitting gauge; types of yarns & web formation.

UNIT II

Production technology of knitted fabrics and garments. UNIT III

CAM and automation in knit

wear. UNIT IV

Finishing requirements of knitted fabrics; quality control in production of knitted fabrics.

Practical

Study & identification of different types of knitted fabrics; Practicing the knitting on flat knitting machines – Familiarisation of commands; making samples of different designs produces ;Making samples of different designs using multicoloured / and complex designing techniques; Visit to a knitted garment unit.

Suggested Readings

Terry Brackenburry. 1996. *Knitted Clothing Technology*. Blackwell.

TAD 515

FASHION ACCESSORIES

1+1

Objective

To familiarize the students with special techniques of creation of fashion accessories and develop skill in them for the development of fashion accessories.

Theory

UNIT I

Introduction to fashion accessories, tools and equipment.

UNIT II

Fashion trends in accessories. UNIT III

Product development and designing- trims, foot wear, handbags, belts, buttons and buckles, hats, scarves.

UNIT IV

Hosiery, jewellery, neck ties, hand kerchiefs, eye wear and watches.

Practical

Market survey; Creation of theme boards for all accessories; Product development and designing – trims; Product development and designing – buttons and buckles; Product development and designing - foot wear; Product development and designing - handbags; Product development and designing - belts; Product development and designing - hats; Product development and designing - scarves; Product development and designing - jewellery Product development and designing –neckties; Product development and designing -handkerchiefs Cost analysis of all items.

Suggested Readings

Bhargav R. 2005. *Design Ideas & Accessories*. Jain Publ.

Carr Harold & John Pomeroy 1996. *Fashion Design & Product Development*. Blackwell Science.

Taylor P. 1990. *Computers in Fashion Industry*. Heinemann.

TAD 516

CONSUMER BEHAVIOR - TEXTILES & APPAREL 1+1

Objective

To provide the indepth knowledge of consumer behavior, consumer protection measures and give them knowledge about retailing in fashion industry.

Theory

UNIT I

Introduction & Overview; the Consumer perspective and view points; understanding the consumer; Environmental Influence; Individual Differences.

UNIT II

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

UNIT III

Consumer Decision Processes and Behaviour; Consumer Analysis & Marketing Strategy; Retailing; Consumer Trends; Market Segmentation; Diffusion of innovation.

UNIT IV

Counterfeit textiles and consumer protection measures; Global Consumer Markets.

Practical

Conducting survey to study the consumer behaviour & preferences of fabric, colour, texture, style of garments etc. from various sectors; Analysis of market; Identification of areas of consumer education in the field of apparel & textiles; Developing educational material for education consumers; Educating selected consumer groups in the identified areas.

Suggested Readings

Cranz RLM. 1972. *Clothing Concepts*. Collier Mcmillan.

Flugel JC. 1950. *The Psychology of Clothes*. Prentice International.

Fringes GS. *Fashion from Concept to Consumer*. Prentice International.

Mary Kafgen & Phyllis 1971. *Individuality in Clothing Selection & Personal Appearance*. The Macmillian Co.

Ryan.M.S. 1966. *Clothing - A Study in Human Behaviour*. Winston.

TAD 601

FUNCTIONAL CLOTHING

2+1

Objective

To enable the students to recognize the importance of portable clothing in textile industry and develop skills in them for designing functional clothing for farm, industrial workers and fire fighters etc.

Theory

UNIT I

Clothing as a portable environment; Comfort in Clothing - principles of heat transfer in apparels, thermal insulation, breathable textiles, clothing systems for thermal protection.

UNIT II

Designing comfortable apparel suitable for warm and cool weather; Impact protective clothing; providing mobility in clothing- Sports clothing – Requirements, importance and designing; fastening systems in clothing; meeting special needs with clothing.

UNIT III

Clothing design for military, clothing design to accommodate physical disabilities & irregularities; clothing design for expecting and lactating mothers.

UNIT IV

Protective clothing- farm, industrial workers, fire fighters.

Practical

Survey on selected functional clothing available in the market; Designing clothing for pregnant women and nursing mothers;

Designing garments for physically challenged and analysis; Designing protective clothing for pesticide applicators, selected industrial workers and fire fighters and analysis; Designing locale specific sports clothes and analysis.

Suggested Readings

- Cookling G. 1997. *Garment Technology for Fashion Designers*. Blackwell Science.
- Kilgus R. (Ed.) 1999. *Clothing Technology*. Europa Lehrmittel, Textile Institute, Manchester.
- Tate M & Glisson O. 1967. *Family Clothing*. John Wiley & Sons.

TAD 602 TECHNICAL TEXTILES 2+1

Objective

To acquaint the students with the techniques of development in nano fiber and micro fibres and study the recent development in the field of technical textiles.

Theory

UNIT I

Developments in Nano-fibre and microfibre non-wovens; importance and classification of technical textiles- types of fibers, materials.

UNIT II

Medical Textiles; Special textiles for industrial applications; automotive textiles; Industrial textiles.

UNIT III

Agro textiles; geo-textiles; Phase Change Materials; Shape Memory Materials; Chromic Materials.

UNIT IV

Conductive Materials and other Functional Materials- characteristics and its applications; Smart textiles – factors affecting the selection and uses.

Practical

Survey of available technical textiles; development of library of technical textiles; Project work.

Suggested Readings

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

TAD 603 TEXTILE ECOLOGY 3+0

Objective

To develop awareness about types of pollution from textiles processing units and their effect and understand the health hazards of textile workers and their remedial measures.

Theory

UNIT I

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

Health hazards of textile workers working in various textile units and their remedial measures. Banned dyes and auxiliaries.

UNIT III

Eco-friendly production and processing of textiles with special reference to organic and naturally coloured cotton, natural dyes and detergents etc.

UNIT IV

Indian and International environmental legislations. Eco labeling, management and auditing.

Suggested Readings

Mark KH, Woodlings & Atlas SM. 1971. *Chemical after Treatment of Textiles*. John Wiley & Sons.

Skinkle JH. 1972. *Textile Testing*. D.B. Taraporewala.

TAD 604

SOURCING AND GLOBALISATION

2+1

Objective

To develop the knowledge about the key issues of globalisation and skill in testing and evaluation of nonwoven textiles.

Theory

UNIT I

Supply chain management in Textiles & Apparel- principles and role in branding; evaluation of key issues facing Textile and Apparel Designing businesses in global markets considering ethical, economic, political, social and professional implications.

UNIT II

Developments in textile & apparel industries before and after phasing out quota system.

UNIT III

Recent trends in major exporting countries, trade policies; integrated strategies towards fair globalisation- improving competitiveness and social responsibility in the industry.

UNIT IV

Actions, policies and shared responsibilities – role of governments, manufacturers, buyers, trade unions and Multinational enterprises.

Practical

Demographics related to textiles & apparel of various countries before and after phasing out quota system; Analysis of opportunities and extent of utilisation by the leading countries - sourcing options

considering quality, production capabilities, workers' rights, investment risk, logistics, legal compliance, and trade policies; Study on supply chain management in textiles & apparel – preparation of flow diagrams describing the supply system in different countries and analysis; Project work based on secondary data.

Suggested Readings

Easey Mike 2000. *Fashion Marketing*. Blackwell Science.

Jarnow J & Guessio M. 1991. *Inside the Fashion Business*.

Prentice Hall. Paola de Helena & Muellor Stewart Carol

1986. *Marketing Today's Fashion*. Prentice Hall.

TAD 605

TEXTILE AUXILIARY

1+1

Objective

To impart the knowledge about various textiles auxiliary used in textile processing and finishing with eco-friendly auxiliaries.

Theory

UNIT I

Definition, history, selection & classification of auxiliaries; important processing operations in which auxiliaries are used.

UNIT II

Chemistry and synthesis of surface active agent- essential requirements of a surfactant, classification, anionic surfactants, cationic agents, non-ionic surfactants, biodegradability of surfactants.

UNIT III

Finishing Agents-Stiffening agents, cross linking agent, optical brightening agent, softeners, water repellents, Flame retarding agent, antistatic agent, soil release agent, antipilling agent, mothproof and mild proof agents.

UNIT IV

Methods of Evaluation of Textile Auxiliaries; eco-friendly auxiliaries.

Practical

Collection of various surfactants available in the market; Analysis of the surfactant properties in selected surfactants ;Preparation of various sizing combinations; Analysis of the sized samples and selection of suitable combinations; Assessment whiteness of fabrics finished with various bleaches & optical brightening agents; Assessment of finished fabrics with selected finishing auxiliaries; Finishing with eco-friendly auxiliaries and assessment.

Suggested Readings

Bogley M. 1977. *Textile Dyes, Finishing and Auxiliaries*. Garland Publ.

Fiscus G & Grunenwald D. 1996. *Textile Finishing: A Complete Guide*. Textile Institute, Manchester.

Hall KJ. 1966. *Textile Finishing*. Heywood.

TAD 606

PRODUCT DEVELOPMENT

1+2

Objective

To impart the knowledge about various product standards and product specifications and the process of product development towards market need.

Theory

UNIT I

Product development – definition, history, Objective; product design & manufacturing, use of merchandising calendar.

UNIT II

Product testing; product economics; product standards and specifications; product quality control; technical services & marketing.

UNIT III

Organizational behaviour; accounting; product intellectual property law. UNIT IV

Role of computers in product development and related softwares.

Practical

Product review – preparation of product profile; Survey on selected products from textile & apparel field; Product testing & analysis – selected textiles & apparel – quality, serviceability, material, construction performance, products standards, specification and cost; Product planning- design, production, relative to cost requirements, aesthetic and functional requirements, producibility, and market needs; Project work.

Suggested Readings

Bhargav R. 2005. *Design Ideas & Accessories*. Jain Publ.

Carr Harold & John Pomeroy 1996. *Fashion Design & Product Development*. Blackwell Science.

TAD 607

TEXTILE CONSERVATION

1+1

Objective

To develop the awareness about textiles conservation and skill in assessment of damage, repair and stabilization of textiles.

Theory

UNIT I

Importance of textile conservation; Various methods for analysis of textiles -fibre content, yarn & fabric

structure. UNIT II

Damage to textiles – pests, micro organisms etc.; Condition assessment, repair, and stabilization of textile and apparel designing in museum collections; Dry, aqueous and solvent cleaning.

UNIT III

Examination of storage and exhibition techniques, materials, and conditions.

UNIT IV

Principles of cleaning fragile textiles; Proper conditions for storing and display of various textiles.

Practical

Visit to a museum and study of various textile conservation methods;
 Analysis of aged textiles - fibre content, yarn & fabric structure;
 Assessment of damage; Repair and stabilisation of textiles;
 Exposure to cleaning techniques; Project work.

Suggested Readings

Harris J. (Ed.). 1993. *Five Thousand Years of Textiles*. British Museum. Leene JE. 1972. *Textile Conservation*. Butterworths.

Williams JC. 1977. *Preservation of Paper and Textiles of Historic and Artistic Value*. American Chemicals Society.

TAD 608 COLOUR APPLICATION IN TEXTILES 1+1

Objective

To develop the knowledge about conditions for dyeing, printing and finishing treatments and skill in analysis of dyed fiber, yarn and fabric. colour science and computer colour matching.

TheoryUNIT I

Detailed theory of colour science and computer match prediction in dyeing fibres, yarns, and fabrics.

UNIT II

Spectrophotometers for colour systems, software & hardware for colour systems.

UNIT III

Objective specification of colour, colour difference, shade sorting, various colour spaces.

UNIT IV

Assessment of whiteness, computer match prediction algorithms based on colour theory and numerical analysis.

Practical

Laboratory techniques for assessing colour strength and reflectance; developing arbitrary scales; Familiarisation of commands to use software

in colour spectrophotometer; Analysis of dyed fibre, yarn and fabrics; Creation of data files and reproduce dyed samples with the match prediction; Analysis of colour fastness of dyed samples; management and interpretation of data generated.

Suggested Readings

Booth JE. 1996. *Principles of Textile Testing*. CBS.

Padmanabhan AR. 1988. *A Practical Guide to Textile Testing*, SITRA, Coimbatore. Prentice Hall.

TAD 609 APPAREL INDUSTRY MANAGEMENT 1+1

Objective

To introduce the students to various trends in management of garment industry and understand various export and import policies.

Theory

UNIT I

Complexity of management in garment industries- Objective and expectations; status of garment industry in India-production, marketing, distribution, consumption and export trends over last five years.

UNIT II

Personnel management in domestic and export apparel industry; techniques in managerial application of cost-volume-profit analysis; productivity analysis; technology upgradation of apparel units - CAD & CAM; productivity rate.

UNIT III

Government policies in export and imports; effect of trade globalization; problems of apparel industry and remedial measures.

UNIT IV

Trends in management, infrastructure facilities and incentives offered for starting a garment industry.

Practical

Visit & survey in domestic and export garment industries that produce shirts, trousers & women's garments; Compilation of data as per the labour & machinery output; Drawing floor plans of the industries; Analysis of garment industries in terms of inputs and outputs; Determination of productivity of the industry & comparison; SWOT analysis of the industries.

Suggested Readings

Gerry Cooklin. 1991. *Introduction to Clothing Manufacture*. Blackwell. Gerry Cooklin. 1997. *Garment Technology for Fashion Designer's*. Blackwell.

Jacob Solinger 1980. *Apparel Manufacture*. Van Nostrand Reilfold.
Pradeep V Mehta 1998. *Managing Quality in Apparel Industry*. New Age International.

Ruth Glock 1990. *Apparel Manufacturing*. Macmillan.

TAD 610

NON-WOVEN TEXTILES

2+0

Objective

To develop the knowledge about fundamental techniques of nonwoven textiles and skill in testing and evaluation of nonwoven textiles.

Theory

UNIT I

Introduction, history, terms and definitions of nonwoven fabrics, characteristics and properties of Nonwoven fabrics, polymers, fibres and binders.

UNIT II

Terminology of non-woven; and types of web formation, bonding and

finishing processes, felt fabrics, needle punched fabrics, spun laced fabrics, dry & wet laid non-woven fabrics; spun bonded and stitch bonded non-woven fabrics; properties and end uses; finishing non-woven.

UNIT III

Trends in non-woven technology, scope of non-woven textiles, identification of nonwoven fabrics.

UNIT IV

Testing and evaluating of nonwovens; Laminated fabrics.

Suggested Readings

Gohi EG & Vilensky. 1993. *Textile Science*. CBS.

Hall AJ. 1995. *Students Hand Book of Textile Science*. Newness Butterworths.

Lewin M & Pearce EM. (Eds.). 1998. *Handbook of Fibre Chemistry*.

Marcel Dekker.

Vidyasagar PV. 1998. *A Handbook of Textiles*. Mittal Publ.

TAD 611 RECENT ADVANCES IN TEXTILE AND APPAREL 2+0
DESIGNING

Objective

To provide indepth knowledge of latest developments in textile and apparel designing and help them to identify thrust areas of reseach.

Theory

UNIT I

Recent reaearches in production and manufacture of textile fibers, yarns and fabrics.

UNIT II

Chemical processing of natural and synthetic textiles and their conversion into clothing.

UNIT III

Developments in the field of functional textiles and clothing; use of special techniques in textile processing.

UNIT IV

Thrust areas of contemporary research andfuture projections.

Suggested Readings

Journals of Apparels and Textiles

TEXTILE AND APPAREL DESIGNING
List of Journals

- **Man Made Textile in India**
Samsmira Marg, Inorli, Mumbai-25, www.sasmira.org
- **Textile Asia**
Business Press Ltd., G.P.O. Box-185, Hong Kong, SAR, China
- **Journal of the Textile Association**
The Textile Association (India), Santosh' 72-A, Dr. M.B. Pant Road, Shivaji Park, Dadar, Mumbai-28.
- **Textile Research Journal**
602, Prospect Avenue, P.O. Box 625, Princeton, New Jersey – 08542, www.textile.research.journal.com
- **Textile Dyer and Printer**
Sevak Publications, Room No. 9, Wellington, Estate, 3rd floor, 24-Commander-in- Chief Road, Madras-600105
306, Shri Hanuman Industrial Estate, G.D. Ambedkar Road, Wadala Mumbai – 31.
- **Textile Trends**
Eastland Publications Pvt. Ltd., 44, Chittaranjan Avenue, Calcutta – 700012.
- **Textile Industry and Trade Journal**
Comput Media Services, Ambica Niwas Sayajiganj, Baroda – 390005
112-A, Oshiwara Industrial Centre, 1st Floor, Link Road, Goregaon (W), Mumbai – 400104.
- **Apparel International**
Apparel International Publishing, The White House, 60 Higher Street, Potters Bar, Herts EN65AB, England.
- **Colourage**
Color Publication (P) Ltd., Post Box No. 9113, 126-A, Dhuruwadi A.V., Nagwekar Marg, Prabhadevi, Mumbai – 400025.
- **Hosiery Journal**
The Journal's Publications, Near Shingaar Cinema, Samrala Road, Ludhiana – 141008.
- **The Textile Magazine**
Gopali & Co., 407-408, Mount Road, Nandanam, Madras – 600035.
- **The Indian Textile Journal**
Business Press Pvt. Ltd., Transmission House, Mora co-Op. Industrial Estate, Mathuradas Vassanji Road, Andheri (E), Mumbai – 59.
- **Textile India Progress**
Asheerwad, 3/39, Sion Estate, Mumbai – 22 .
- **Clothes Line**
Clothline Media Pvt. Ltd., 7-B, Shah Industrial Estate, Veena Desai Road, Azad Nagar, Andheri (W), Mumbai – 53 .
C-27, Panchsheel Enclave, Second Floor, New Delhi – 17.
- **Indian Journal of Fibre and Textile Research**
National Institute of Science, Communication, CAIR, Dr. K.S. Krishnan Marg, New Delhi – 12.
- **Indian Journal of Textile and Research**
Publication and Information Directorate, CSIR, Hillside Road, New Delhi – 12.
- **Society of Dyers and Colourists**
P.O. Box 244, Perkin House, 82, Grattan Road, Bradford, BD12JB, U.K.
- **American Dyestuff Reporter**

SAF International Publications, Inc., Promenade A Suite 2, Harmon Cove Towers, Secaucus, NJ 07094, USA.

- **ARS Textrina** (A Journal of Textiles and Costumes)
Charles Babbage Research Centre, P.O. Box 47, Humboldt MN, USA, 56731
P.O. Box 272, St. Norbert Postal Station, Winnipeg, Manitoba, Canada, 3V1L6.
- **New Cloth Market**
Indian Industrial and Management Services, 46, 'White House', Panchwati, C.G. Road, Ahmedabad – 380006.
- **Natural Product Radiance**
Periodicals Division, National Institute of Science, Communication and Information Resources, Dr. K.S. Krishnan Marg, New Delhi – 12.

e-Resources

- <http://www.lib.ncsu.edu/news/textiles.php?p=513&more=1&c=1&tb=1&pb=1> Textile s
- <http://jit.sagepub.com/tips/cross.dtl>
- http://catalog.lib.ncsu.edu/web2/tramp2.exe/do_ccl_search/guest?setting_key=files&*search_button=keyword&servers=1home&index=default&query=AQZ-4405
- ctr.sagepub.com/s-clothing nad textile research journal
- www.sagepub.com/journalsIndex.nav -
- www.itaonline.org/template.asp?intPageId=119 - 102k - Cached
- jurnalhukum.blogspot.com/.../akses-gratis-terbatas-sage-journal.html - 61k – Cached
- [search.barnesandnoble.com/Medieval-Clothing-and-Textiles/...](http://search.barnesandnoble.com/Medieval-Clothing-and-Textiles/)
- product.half.ebay.com/_W0QQprZ1432447
- www.amazon.com/Textiles-Colonial-Clothing-Sally-Queen/dp/0965819744 - 212k - Cached
- www.librarything.com/tag/clothing - Cached
- www.interweave.com/needle/piecework_magazine/files/PW_Notions_1-05.pdf
- en.wikipedia.org/wiki/History_of_clothing_and_textiles - 99k – Cached
- www.lib.ua.edu/libraries/gorgas/subguides/cloapptex.htm - Cached
- www.florilegium.org/files/CLOTHING/clothing-books-msg.html - 433k - Cached
- www.teonline.com/papers/books-textile-services.html - Cached
- ctr.sagepub.com/cgi/reprint/24/4/316.pdf
- search-desc.ebay.com/search/search.dll?...&sosortorder=2
- www.florilegium.org/files/CLOTHING/clothing-FAQ.html - 63k - Cached
- amazon.com/Vintage-Clothing-1880-1980-Identification-Value/dp/... - 220k – Cached
- www.teonline.com/papers/books-trims-closures.html - Cached
- target.com/gp/search?ie=UTF8&index=books&field-keywords=clothing+... - 228k – Cached
- www.beaglebay.com/historical_clothing.htm - 287k - Cached
- www.textilemuseum.org/PDFs/Worldwidetextilecollections.pdf
- www.ebooks.com/ebooks/book_display.asp?IID=269362
- <http://www.tx.ncsu.edu:8190/jtatm/index.html>

Suggetsed Broad Topics for Master's and Doctoral Research

- Quality improvement of under-utilized protein and cellulosic fibres by enzyme

- treatment
- Effect of enzymatic treatment on vegetable dyes
 - Analysis of properties of fabrics dyed with dyes extracted from medicinal plants
 - Blending of under-utilized fibres with major fibres for quality analysis
 - Designing of protective and functional clothing for farm workers and industrial workers
 - Diversification of utilization of jute and under utilized fibres
 - Development of suitable sports wears
 - Development of paper patterns for designs to be developed for persons engaged in different occupations
 - Product diversification using minor fibers

COMPULSORY NON-CREDIT COURSES

(Compulsory for Master's programme in all disciplines; Optional for Ph.D. scholars)

CODE	COURSE TITLE	CREDITS
PGS 501	LIBRARY AND INFORMATION SERVICES	0+1
PGS 502	TECHNICAL WRITING AND COMMUNICATIONS SKILLS	0+1
PGS 503 (e-Course)	INTELLECTUAL PROPERTY AND ITS MANAGEMENT IN AGRICULTURE	1+0
PGS 504	BASIC CONCEPTS IN LABORATORY TECHNIQUES	0+1
PGS 505 (e-Course)	AGRICULTURAL RESEARCH, RESEARCH ETHICS AND RURAL DEVELOPMENT PROGRAMMES	1+0
PGS 506 (e-Course)	DISASTER MANAGEMENT	1+0

Course Contents

PGS 501 LIBRARY AND INFORMATION SERVICES 0+1
Objective

To equip the library users with skills to trace information from

libraries efficiently, to apprise them of information and knowledge resources, to carry out literature survey, to formulate information search strategies, and to use modern tools (Internet, OPAC, search engines etc.) of information search.

Practical

Introduction to library and its services; Role of libraries in education, research and technology transfer; Classification systems and organization of library; Sources of information- Primary Sources, Secondary Sources and Tertiary Sources; Intricacies of abstracting and indexing services (Science Citation Index, Biological Abstracts, Chemical Abstracts, CABI Abstracts, etc.); Tracing information from reference sources; Literature survey; Citation techniques/Preparation of bibliography; Use of CD-ROM Databases, Online Public Access Catalogue and other computerized library services; Use of Internet including search engines and its resources; e- resources access methods.

PGS 502 TECHNICAL WRITING AND COMMUNICATIONS SKILLS 0+1

Objective

To equip the students/scholars with skills to write dissertations, research papers, etc.

To equip the students/scholars with skills to communicate and articulate in English (verbal as well as writing).

Practical

Technical Writing - Various forms of scientific writings- theses, technical papers, reviews, manuals, etc; Various parts of thesis and research communications (title page, authorship contents page, preface, introduction, review of literature, material and methods, experimental results and discussion); Writing of abstracts, summaries, précis, citations etc.; commonly used abbreviations in the theses and research communications; illustrations, photographs and drawings with suitable captions; pagination, numbering of tables and illustrations; Writing of numbers and dates in scientific write-ups; Editing and proof-reading; Writing of a review article. **Communication Skills** - Grammar (Tenses, parts of speech, clauses, punctuation marks); Error analysis (Common errors); Concord; Collocation; Phonetic symbols and transcription; Accentual pattern: Weak forms in connected speech: Participation in group discussion: Facing an interview; presentation of scientific papers.

Suggested Readings

Chicago Manual of Style. 14th Ed. 1996. Prentice Hall of India.

Collins' Cobuild English Dictionary. 1995. Harper Collins.

Gordon HM & Walter JA. 1970. *Technical Writing*. 3rd Ed. Holt, Rinehart & Winston.

Hornby AS. 2000. *Comp. Oxford Advanced Learner's Dictionary of Current English*. 6th Ed. Oxford University Press.

James HS. 1994. *Handbook for Technical Writing*. NTC Business Books. Joseph G. 2000. *MLA Handbook for Writers of Research Papers*. 5th Ed. Affiliated East-West Press.

Mohan K. 2005. *Speaking English Effectively*. MacMillan India. Richard WS. 1969. *Technical Writing*. Barnes & Noble.

Robert C. (Ed.). 2005. *Spoken English: Flourish Your Language*. Abhishek. Sethi J & Dhamija PV. 2004. *Course in Phonetics and Spoken English*. 2nd Ed. Prentice Hall of India.

Wren PC & Martin H. 2006. *High School English Grammar and Composition*. S. Chand & Co.

PGS 503

**INTELLECTUAL PROPERTY AND ITS MANAGEMENT IN 1+0
AGRICULTURE**

(e-Course)

Objective

The main objective of this course is to equip students and stakeholders with knowledge of intellectual property rights (IPR) related protection systems, their significance and use of IPR as a tool for wealth and value creation in a knowledge-based economy.

Theory

Historical perspectives and need for the introduction of Intellectual Property Right regime; TRIPs and various provisions in TRIPs Agreement; Intellectual Property and Intellectual Property Rights (IPR), benefits of securing IPRs; Indian Legislations for the protection of various types of Intellectual Properties; Fundamentals of patents, copyrights, geographical indications, designs and layout, trade secrets and traditional knowledge, trademarks, protection of plant varieties and farmers' rights and bio-diversity protection; Protectable subject matters, protection in biotechnology, protection of other biological materials, ownership and period of protection; National Biodiversity protection initiatives; Convention on Biological Diversity; International Treaty on Plant Genetic Resources for Food and Agriculture; Licensing of technologies, Material transfer agreements, Research collaboration Agreement, License Agreement.

Suggested Readings

Erbisch FH & Maredia K. 1998. *Intellectual Property Rights in Agricultural Biotechnology*. CABI.

Ganguli P. 2001. *Intellectual Property Rights: Unleashing Knowledge Economy*. McGraw-Hill.

Intellectual Property Rights: Key to New Wealth Generation. 2001. NRDC & Aesthetic Technologies.

Ministry of Agriculture, Government of India. 2004. *State of Indian Farmer*. Vol. V. *Technology Generation and IPR Issues*. Academic Foundation.

Rothschild M & Scott N. (Ed.). 2003. *Intellectual Property Rights in Animal Breeding and Genetics*. CABI.

Saha R. (Ed.). 2006. *Intellectual Property Rights in NAM and Other Developing Countries: A Compendium on Law and Policies*. Daya Publ. House.

The Indian Acts - Patents Act, 1970 and amendments; Design Act, 2000; Trademarks Act, 1999; The Copyright Act, 1957 and amendments; Layout Design Act, 2000; PPV and FR Act 2001, and Rules 2003; National Biological Diversity Act, 2003.

PGS 504 BASIC CONCEPTS IN LABORATORY TECHNIQUES 0+1

Objective

To acquaint the students about the basics of commonly used techniques in laboratory.

Practical

Safety measures while in Lab; Handling of chemical substances; Use of burettes, pipettes, measuring cylinders, flasks, separatory funnel, condensers, micropipettes and vaccupets; washing, drying and sterilization of glassware; Drying of solvents/chemicals. Weighing and preparation of solutions of different strengths and their dilution; Handling techniques of solutions; Preparation of different agro-chemical doses in field and pot applications; Preparation of solutions of acids; Neutralisation of acid and bases; Preparation of buffers of different strengths and pH values. Use and handling of microscope, laminar flow, vacuum pumps, viscometer, thermometer, magnetic stirrer, micro-ovens, incubators, sandbath, waterbath, oilbath; Electric wiring and earthing. Preparation of media and methods of sterilization; Seed viability testing, testing of pollen viability; Tissue culture of crop plants; Description of flowering plants in botanical terms in relation to taxonomy

Suggested Readings

Furr AK. 2000. *CRC Hand Book of Laboratory Safety*. CRC Press.

Gabb MH & Latchem WE. 1968. *A Handbook of Laboratory Solutions*.

Chemical Publ. Co.

PGS 505 AGRICULTURAL RESEARCH, RESEARCH ETHICS 1+0

(e-Course)

Objective

To enlighten the students about the organization and functioning of

agricultural research systems at national and international levels, research ethics, and rural development programmes and policies of Government.

Theory

UNIT I

History of agriculture in brief; Global agricultural research system: need, scope, opportunities; Role in promoting food security, reducing poverty and protecting the environment; National Agricultural Research Systems (NARS) and Regional Agricultural Research Institutions; Consultative Group on International Agricultural Research (CGIAR): International Agricultural Research Centres (IARC), partnership with NARS, role as a partner in the global agricultural research system, strengthening capacities at national and regional levels; International fellowships for scientific mobility.

UNIT II

Research ethics: research integrity, research safety in laboratories, welfare of animals used in research, computer ethics, standards and problems in research ethics.

UNIT III

Concept and connotations of rural development, rural development policies and strategies. Rural development programmes: Community Development Programme, Intensive Agricultural District Programme, Special group – Area Specific Programme, Integrated Rural Development Programme (IRDP) Panchayati Raj Institutions, Co-operatives, Voluntary Agencies/Non-Governmental Organisations. Critical evaluation of rural development policies and programmes. Constraints in implementation of rural policies and programmes.

Suggested Readings

Bhalla GS & Singh G. 2001. *Indian Agriculture - Four Decades of Development*. Sage Publ.

Punia MS. *Manual on International Research and Research Ethics*. CCS, Haryana Agricultural University, Hisar.

Rao BSV. 2007. *Rural Development Strategies and Role of Institutions - Issues, Innovations and Initiatives*. Mittal Publ.

Singh K.. 1998. *Rural Development - Principles, Policies and Management*. Sage Publ.

**PGS 506
(e-Course)**

DISASTER MANAGEMENT

1+0

Objectives

To introduce learners to the key concepts and practices of natural disaster management; to equip them to conduct thorough assessment of hazards, and risks vulnerability; and capacity building.

Theory

UNIT I

Natural Disasters- Meaning and nature of natural disasters, their types and effects. Floods, Drought, Cyclone, Earthquakes, Landslides, Avalanches,

Volcanic eruptions, Heat and cold Waves, Climatic Change: Global warming, Sea Level rise, Ozone Depletion

UNIT II

Man Made Disasters- Nuclear disasters, chemical disasters, biological disasters, building fire, coal fire, forest fire. Oil fire, air pollution, water pollution, deforestation, Industrial wastewater pollution, road accidents, rail accidents, air accidents, sea accidents.

UNIT III

Disaster Management- Efforts to mitigate natural disasters at national and global levels. International Strategy for Disaster reduction. Concept of disaster management, national disaster management framework; financial arrangements; role of NGOs, Community-based organizations, and media. Central, State, District and local Administration; Armed forces in Disaster response; Disaster response: Police and other organizations.

Suggested Readings

Gupta HK. 2003. *Disaster Management*. Indian National Science Academy. Orient Blackswan.

Hodgkinson PE & Stewart M. 1991. *Coping with Catastrophe: A Handbook of Disaster Management*. Routledge.

Sharma VK. 2001. *Disaster Management*. National Centre for Disaster Management, India.