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Appendix to  
Stew No- LXIII



**Curriculum and Credit Framework**

**For (NEP-2020)**

**Session-2023-24**

**4 Year B.Sc. (Hons.) Fashion Designing/**

**4 Year B.Sc. (Hons. With Research) Fashion Designing**

**For Affiliated Colleges of**

**Panjab University, Chandigarh**

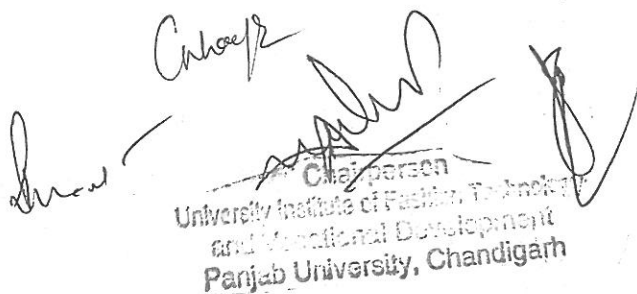
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Table 1: Semester-Wise Course-wise Distribution of credits of the undergraduate Programme

Sem	Discipline Specific Course-Core	Minor	*Interdisciplinary Courses	Ability Enhancement courses (language)	Skill Enhancement courses/Internship /Dissertation	Common Value- Added Courses	Total Credits
I	(100 level) 6-C	(100 level) 6-C	(1 course) 3-C	(1 course) 2-C	(1 course) 3-C	(1 or 2 course) 2-C	22
II	(100 level) 6-C	(100 level) 6-C	(1 course) 3-C	(1 course) 2-C	(1 course) 3-C	(1 or 2 course) 2-C	22
Students exiting the programme after securing 40 credits will be awarded UG Certificate in the relevant Discipline /Subject provided they secure 4 credits in work based vocational courses offered during summer term or internship / Apprenticeship in addition to 6 credits from skill-based courses earned during First and second semester							
III	(200 level) 13-C	(200 & above) 4-C	(1 course) 3-C	(1 course) 2-C	-	-	22
IV	(200 level) 13C	(200 & above) 4-C	-	(1 course) 2-C	(1 course) 0-3-C		22
Students exiting the programme after securing 80 credits will be awarded UG Diploma in the relevant Discipline/Subject provided they secure additional 4 credits in skill based vocational courses offered during first year or second year summer term.							
V	(300 level) 16-C	(200 & above) 4-C	-	-	Internship 2-C	-	22
VI	(300 level) 16-C	(200 & above) 4-C	-	-	-	2-C	22
Students who want to undertake 3-year UG programme will be awarded UG Degree in the relevant Discipline /Subject upon securing 120 credits. Subject to minimum credit requirement in respective subjects as per Table 2.							
VII	(400 level) 18-C	(300 & above) 4-C	-		-	-	22
VIII	(400 level) 18-C	(300 & above) 4-C	-		(Research Project/ Dissertation) ** 12-C		22
Students will be awarded UG Degree (Honours) with Research in the relevant discipline upon securing minimum 160 credits. Subject to minimum credit requirement in respective subjects as per Table 2.							

\*Inter-disciplinary courses must be different from the 'Discipline Specific and 'Minor' Courses.

\*\*option Only for students with more than 75% marks in first 6 semesters. Students must take an additional 6 credit Discipline Specific Course-Core along with the 12 Credit Research Project.


  
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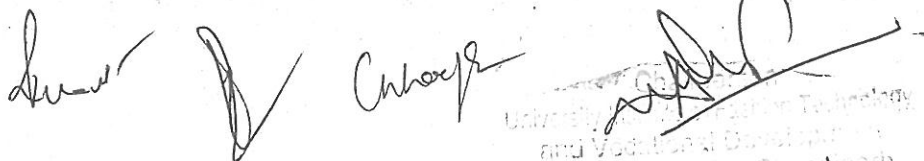


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**Scheme of Studies**  
**Under Graduate Programme in Fashion Designing for the admission 2023-24. (NEP 2020)**  
**Semester-I**

Sr. No.	Subject	Course	Credit (Th.+Pr.)			Theory marks			Practical Marks			Total
			T	P	Total	Paper	IA	Total	Paper	IA	Total	
1.	Major	FD-101 Garment Construction-I	1	2	3	20	05	25	40	10	50	75
		FD-102 Basics of Design	0	3	3	-	-	-	60	15	75	75
2.	Minor	FD-111 Textile Science-I	2	1	3	40	10	50	20	5	25	75
		FD-112 Textile Design-I	0	3	3	-	-	-	60	15	75	75
3.	Inter-disciplinary Course	FD-121 Art in everyday Life	2	1	3	40	10	50	20	5	25	75
4.	Ability Enhancement Course	FD-131 English Language and Communication Skills-I	2	0	2	40	10	50	-	-	-	50
5.	Skill Enhancement Courses (SEC)	FD-141 Hand Painting Or FD-142 Yarn Craft	0	3	3	-	-	-	60	15	75	75
6.	Common Value-Added Courses	FD-151 Basics of Computer-I or FD -152 Music or FD-153 Dance Or FD-154 Physical Education	0	2	2	-	-	-	40	10	50	50
7.	Total		07	15	22							550

- Minimum Credits Required for UG Certificate = 44 + 4 #
- Any one SEC to be opted by the student. SEC will be allocated on the basis of merit & availability of seats.
- # Exit 1: Certificate Course - Student can Exit after completion of 1st year having secured 44 Credits and will be awarded a UG Certificate provided they complete a vocational course/internship of 4 credits during the summer vacation of the first year, in addition to the 6 credits from skill-based courses earned during 1st and 2nd semester


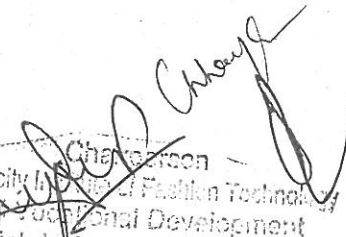
  
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**Scheme of Studies**  
**Under Graduate Programme in Fashion Designing for the admission 2023-24. (NEP 2020)**  
**Semester-II**

Sr. No.	Subject	Course	Credit (Th.+Pr.)			Theory marks			Practical Marks			Total
			T	P	Total	Paper	IA	Total	Paper	IA	Total	
1.	Major	FD:103 Garment Construction-II	0	3	3	-	-	-	60	15	75	75
		FD -104 Garment Design-I	0	3	3	-	-	-	60	15	75	75
2.	Minor	FD-113 Textile Science-II	2	1	3	40	10	50	20	5	25	75
		FD-114 Textile Design-II	0	3	3	-	-	-	-	60	15	75
3.	Inter-disciplinary Course	FD-122 Sustainability in everyday life	2	1	3	40	10	50	20	5	25	75
4.	Ability Enhancement Course	FD- 132 English Language and Communication Skills-II	2	0	2	40	10	50	-	-	-	50
5.	Skill Enhancement Courses (SEC)	FD-143 Decorative Dyeing Or FD- 144 Basic hand Embroidery	0	3	3	-	-	-	60	15	75	75
6.	Common Value-Added Courses	FD-155 Basics of Computer-II or FD-156 Music-II or FD-157 Dance-II or FD-158 Physical Education-II	0	2	2	-	-	-	40	10	50	50
8.	Total		06	16	22							550

- Any one SEC to be opted by the student. SEC will be allocated on the basis of merit & availability of seats.
- Students who opt to exit after completion of the first year and have secured 44 credits will be awarded a UG certificate if, in addition, they complete one internship of 4 credits in relevant field during the summer vacation of the first year.

  
  
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## Fashion Designing Semester -I

### MAJOR COURSES

#### FD-101 GARMENT CONSTRUCTION-I THEORY

Credit: 1

Duration of class: 1 hr/week

Duration of Exam: 3hrs.

Total Marks: 25

Exam: 20

Int. Ass.: 05

#### INSTRUCTIONS TO EXAMINER

1. There will be total nine questions carrying equal marks. Two questions from each unit and one compulsory question covering all the units.
2. Five questions will be attempted in all. Question No. 1 will be compulsory carrying short answer type questions, fill in the blanks or true/false.
3. Each question will carry equal marks

#### COURSE OBJECTIVES:

- To impart knowledge of machines and tools used for sewing.
- To impart knowledge of different garment components.

#### UNIT-I

1. Sewing Machine:
  - Its parts and their functions.
  - Common sewing machine problems and their remedies
  - Care and maintenance of sewing machines

#### UNIT-II

2. Tools and equipment used in clothing construction
  - Measuring tools
  - Marking tools
  - Cutting tools
  - Sewing tools
  - Finishing tools

#### UNIT-III

3. Terminology:  
Grain, Bias, Selvedge, Stay stitching, Binding, Seam allowance, Yardage, Tailor's tack, Ease stitching
4. Lining, interlining and underlining. (Definition and Difference)
5. Facing and inter facing. (Definition and Difference)

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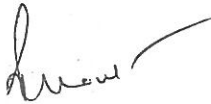
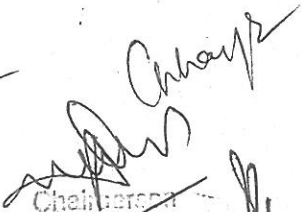

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#### UNIT-IV

6. Handling special fabrics (with special reference to seams, seam finishing and handling while sewing) - Net, fur, leather, sheers, Jersey, Velvet, Corduroy, prints, checks and plaids, sequined fabric.
7. Preparation of fabric for clothing construction.
8. Fabric estimation and its importance.

#### Recommended readings:

- McCall's, "Sewing in colour-Home dressmaking, Tailoring, Mending, soft furnishings, The Hamylton Publishing Group Ltd. (1963).
- Dantyagi S., "Fundamentals of Textiles and their Care", Orient Longman Ltd, New Delhi.
- A Redaer's Digest Step by Step guide, Sewing and Knitting", Reader's Digest (Australia) Pty Ltd.
- "The Complete Book of sewing- A practical step by step guide to sewing techniques" Dorling Kindersely publication, (1996).
- "Singer sewing step by step", CY Decosse, Incorporated Minne Tonka, USA. (1990).
- Thomas Anna Jacob, ' The Art of Sewing", UBS Publishers Distributors Ltd., New Delhi, 1994.
- Verma G, "Cutting and Tailoring Theory", Asian Publishers, Delhi, 1999.
- Armstrong Helen Joseph, "Pattern making for fashion designing".
- Mullick Prem Lata, "Garment construction Skills".

  
  
  
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## Semester -I

### FD-101 GARMENT CONSTRUCTION-I

#### PRACTICAL

Credit: 2

Duration of class: 4 hr/week

Duration of Exam: 3hrs.

Total Marks: 50

Exam: 40

Int. Ass.: 10

#### INSTRUCTIONS TO EXAMINER

There will be four questions in all.

#### COURSE OBJECTIVES:

To learn-

- Various basic hand stitches
- Seams and seam finishes
- Different fullness treatments
- Pockets and plackets

1. Making samples of Basic hand stitches
  - Basting (Even, Uneven and Diagonal)
  - Hemming (visible and invisible)
2. Making samples of types of seams-
  - Plain
  - Run and fell
  - French
  - Counter
3. Making samples of types of seam finishes-
  - Overlock
  - Hand overcast
  - Turned and stitched
  - Binding.
4. Fullness treatment-
  - Tucks- Pin tucks, Shell tucks, Cross tucks
  - Gathers
  - Pleats- Box Pleats, Knife Pleats
  - Frills and flounces
5. Making samples of Neckline finishes
  - Facing
  - Binding
6. Making samples of plackets-

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- Continuous placket
  - Two Piece placket
7. Making samples of Zippers-
- Visible Zipper.
  - Invisible Zipper
8. Making sample of different Fasteners
9. Making samples of Pockets-
- Patch pocket
  - Inseam pocket
  - Front Hip pocket
  - Kurta pocket

**Recommended readings:**

- Thomas Anna Jacob, 'The Art of Sewing', UBS Publishers Distributors Ltd., New Delhi, 1994.
- Reader's digest complete guide to sewing, Reader's Digest (Australia) Pvt. Ltd.
- Verma G, "Cutting and Tailoring Theory", Asian Publishers, Delhi, 1999.
- Armstrong Helen Joseph, "Pattern making for fashion designing".
- Mullick Prem Lata, "Garment Construction Skills".

  
  
  
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## Semester -I

### FD-102 BASICS OF DESIGN PRACTICAL

Credit: 2

Duration of class: 4 hr/week

Duration of Exam: 3hrs.

Total Marks: 50

Exam: 40

Int. Ass.: 10

#### INSTRUCTIONS TO EXAMINER

1. Practical examination will be of 3 hours duration
2. Question paper should cover all the topics .
3. Internal choice may be given in all questions

#### COURSE OBJECTIVES:

To enable students to understand:

1. Various drawing tools and colouring mediums
  2. Types of lines and shapes
  3. Drawing of basic block figure
- 
1. Introduction to different drawing tools and coloring mediums and its application.
  2. Application of elements of art in fashion designing-
    - Line
    - Form/Shape- Different types of motifs
    - Color -Dimension, Color wheel and Color schemes
    - Texture
  3. Application of principles of art in fashion designing-
    - Harmony
    - Proportion
    - Balance
    - Rhythm
    - Emphasis.
  4. Drawing of Block Figure
    - Eight, ten and twelve head figure.
    - Front, back and ¾ profiles.
    - Fleshing of block figure.

#### Recommended readings:





- Jerner G., "Dress -The Clothing Textbook", Benett Co. Inc. Peoria.
- Ellinwood J. G., "Fashion by Design", Fairchild Book, New York.
- Aspeland K., "The Design Process", Fairchild Books, New York.
- Tortora P., "Encyclopedia of Fashion Accessories", Fairchild Publications Inc. (2003).
- Wells K., "Fabric Dyeing and Printing", Conron Octopus Ltd., London.
- Mc Cullum G. L., "4000 Flower & Plant Motifs", a sourcebook, BT Bats ford, London.

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- Fernandez A. and Roig G. M., "Drawing for Fashion Designers".
- Prakash K., "Textile Design - Traditional & Floral", Tien Wah Press Ltd., Singapore.
- Clarke S., "Textile Design", Laurence King Publishing Ltd., London.
- Betta E. and Drudi K., "Fabric Textures & Patterns", The Pepin Press, Singapore.

   
   
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MINOR COURSES

**Semester-I**  
**TEXTILE SCIENCE-I**  
**THEORY**

Credit: 2

Duration of class: 2 hr/week

Duration of Exam: 3hrs.

Total Marks: 50

Exam: 40

Int. Ass.: 10

**INSTRUCTIONS TO EXAMINER**

1. There will be total nine questions carrying equal marks. Two questions from each unit and one compulsory question covering all the units.
2. Five questions will be attempted in all: Question No. I will be compulsory, carrying short answer type questions, fill in the blanks or true/false.
3. Each question will carry equal marks.

**COURSE OBJECTIVES:**

- To impart knowledge of fibers, sources of fibers, manufacturing process and their properties.

**UNIT I**

1. Textile fibers and their classification
2. Properties of textiles fibers: appearance, surface countour, crimp, length, strength or tenacity, specific gravity, elongation and elastic recovery, resiliency, abrasion resistance, absorbency and moisture regain, electrical conductivity, heat conductivity, dimensional stability and chemical reactivity.

**UNIT II**

3. Manufacturing and properties of natural cellulosic fibers – cotton and linen.
4. Manufacturing and properties of natural protein fibers- wool and silk.

**UNIT III**

5. Manufacturing process and properties of regenerated cellulosic fibre – Viscose & High-wet modulus Rayon
6. Manufacturing process and properties of modified cellulosic fibre – Acetate & Tri-acetate

**UNIT IV**

7. Manufacturing process and properties of man-made synthetic fibres
  - (a) Polyamide- Nylon 66, Nylon 6
  - (b) Polyester
  - (c) Acrylic

**Recommended readings:**

- Vilensky, "Textile Science", CBS Publication, New Delhi, 1999.
- Mishra S.P., "A Textbook of Fiber Science and Technology", New Age Intl., Delhi 2000.
- Eric Oxtoby, "Spun Yarns, Technology, Structure and Applications, Wiley-InterScience, NY, 1978.

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- Corbman, "Textiles: Fiber to Fabric" Mc Graw Hill
- Kadolph, S.J, "Textiles", Tenth Edition, Dorling Kindersley, 2009.
- Tortora, P.G., "Understanding Textiles", Mac Millan, Publishing Co, New York, 1978.
- Hollen, N and Saddler. J, "Textiles" Mac Millan, London, 1968.

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**Semester-I**  
**TEXTILE SCIENCE**

**PRACTICAL**

Credit: 1

Duration of class: 2hr/week

Duration of Exam: 3hrs.

Total Marks: 25

Exam: 20

Int. Ass.: 05

**INSTRUCTIONS TO EXAMINER**

1. There will be two questions in all.

**COURSE OBJECTIVES:**

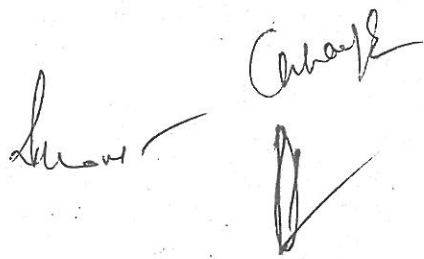

- To help the students to identify various classes of textiles fibers.

1. Fiber identifications using following methods:

- Visual inspection
- Burning Test
- Microscopic
- Solubility test.

**Recommended readings:**

- Vilensky, "Textile Science", CBS Publication, New Delhi, 1999.
- Mishra S.P., "A Textbook of Fiber Science and Technology", New Age Intl., Delhi 2000.
- Corbman, "Textiles: Fiber to Fabric" Mc Graw Hill
- Kadohph, S.J., "Textiles", Tenth Edition, Dorling Kindersley, 2009.
- Tortora, P.G., "Understanding Textiles", Mac Millan, Publishing Co, New York, 1978.
- Hollen, N and Saddler. J, "Textiles" Mac Millan, London, 1968.

  
  
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**Semester-I**  
**TEXTILE DESIGN**  
**PRACTICAL**

Credit: 3

Duration of class: 6 hr/week

Duration of Exam: 3hrs.

Total Marks: 75

Exam: 60

Int. Ass.: 15

**INSTRUCTIONS TO EXAMINER**

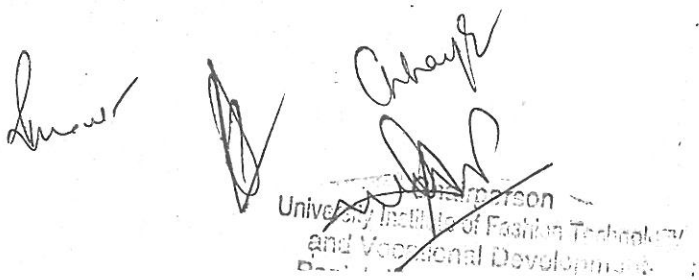
Practical paper will be of 3 hours duration

2. Question paper should cover all the topics
3. Internal choice may be given in all questions

**COURSE OBJECTIVES:**

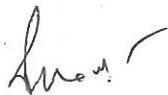
To enable students to understand: Various types of motifs and their placements

1. Designing of following motifs and its types in different colourways
  - Geometrical
  - Realistic
  - Natural
  - Stylized
  - Abstract
2. Transfer of motif
3. Enlargement and reduction of motif
4. Print development by different placements of motif
  - Vertical
  - Horizontal
  - Repeated mirror
  - Half drop
  - All over
  - Tile or brick
  - Diagonal
5. Development of prints
  - Nursery
  - Dots, stripes, checks and plaids
  - Digital
  - Abstract
  - Floral
  - Traditional
6. Creating textures using different medium: thread pulling, stencil spray, ink drop, blowing of colors and inks, marbling, rubbing, pencil, crayons, rubber and candles

  
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**Recommended Readings:**

1. Simon Clarke, "Textile Design", Laurence King Publishing Limited, London 2011
2. Textile Design-II, Graphic-sha-Publishing Co. Ltd., Tokyo, Japan, 1977
3. A. Wynne, "Textiles", Macmillan Education Limited, London, 1997
4. Joost van Roojen, "Water Color Patterns", The Peplin Press, The Netherland, 2005
5. Mary Kefgan, "Individuality in Clothing selection" Macmillian Publishing Company, New York, 1981
6. JernerGawne, "Dress- The Clothing Text book", C.A. Benett Co., 1969
7. Majorie Elliot Bevin, Halt, Rinchart and Winston, "Design through discovery", Inc., USA
8. Sharon Lee Tate, "Inside Fashion Design", , Pearson Edu Inc., India
9. Jay Diamond, Ellen Diamond, "Fashion Apparel and Accessories and Home, Furnishings", Pearson Edu Inc., India
10. Veena Gandotra, Maneesha Shukul, Neerja Jaiswal, "Introduction to Interior Design and Decoration" Dominant Publishers, 2010
11. Premlata Mullick, "Textbook of Textile Design", Kalyani Publishers, 2006
12. Jenny Udale, "Textile and Fashion", Bloomsbury Publishing, UK, 1988
13. Sulahria Diamond, "Inside Design", A department of Harper and Row Publishers Inc., New York, 1977



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## INTER-DISCIPLINARY COURSE

Semester I

### FD-121 ART IN EVERYDAY LIFE

#### THEORY

Credit: 2

Duration of class: 2 hr/week

Duration of Exam: 3hrs.

Total Marks: 50

Exam: 40

Int. Ass.: 10

#### INSTRUCTIONS TO EXAMINER

1. Question paper will have four sections.
2. Examiner will set a total of nine questions comprising of two questions from each unit and one compulsory question of short answer type covering the whole syllabus.
3. Students will attempt one question from each unit and the compulsory question.
4. All questions may carry equal marks unless specified.

#### COURSE OBJECTIVES:

To enables students-

- a) To gain better understanding of the application of Art Principles in interiors.
- b) To understand the elements of Art and Design as applied to daily life.
- c) To gather information regarding technologies and materials used for interiors.

#### UNIT-I

- 1) ART and its Importance.
- 2) Utility and Functions of Art in everyday life.

#### UNIT- II

- 3) Elements of Art- Line, Shape, Texture, Value and Color.
- 4) Principles of Art-Balance, Unity, Repetition, Contrast, Dominance and Harmony

#### UNIT- III

- 5) Colour and its importance
- 6) Dimensions of colour- Hue, value and intensity
- 7) Value of colors to increase and decrease the illusion.

#### UNIT- IV

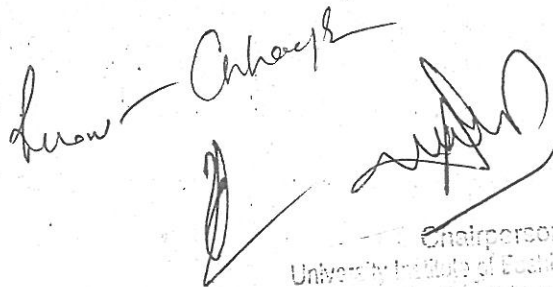
- 8) Tints, tones and shades
- 9) Psychological Impact of colors.
- 10) Color schemes



**Recommended Readings**

1. Art in Everyday Life- Harriet Goldstein Mac Millan Co. New York.
2. Rendering with Pen & Ink- Robert W. Gill (Thames and Hudson Manual).
3. Colour Trends- Vol. I, Ethnic, Japanesque, High- Tech Colours, AIM Creative Products Pvt. Ltd.
4. Colour –A Guide to basic facts and concepts, John Wiley & Sons, New York.
5. A brief history of Indian Painting- Dr. L.C. Sharma, Publishing House Meerut.
6. A Hand Book of Indian Art, Sunil Khosa, Sundeep Prakashan Delhi.
7. Elements of Indian Art, S.P. Gupta, Shashi Prabha Asthana, D.K. Print World, New Delhi.
8. Ajanta Murals – A Ghosh, Archeological Survey of India- New Delhi.
9. Art and Illusion- E.H. Gombrich, PHAIDON Press London.
10. Sedona – Rosenstiel's Publishers, 2005, Fine Art Publishers, London.
11. Silver- Rosenstil's Publishers, 2005, Fine Art Publishers, London .

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## Semester I

## FD-121 ART IN EVERYDAY LIFE

## PRACTICAL

Credit: 1

Duration of class: 2hr/week

Duration of Exam: 3hrs.

Total Marks: 25

Exam: 20

Int. Ass.: 05

**INSTRUCTIONS TO EXAMINER**

- The examiner will set a total of three questions from the syllabus. Students will attempt any one question from the three questions set.

**COURSE OBJECTIVES:****To enables students-**

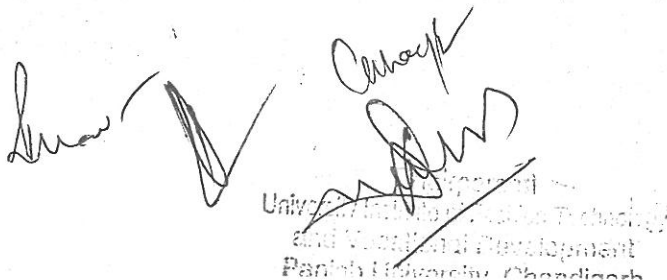
- a) To gain better understanding of the application of Art Principles in interiors
- b) To understand the elements of Art and Design as applied to daily life
- c) To gather information and understand and enjoy visual arts.

**Contents:**

1. Preparation of sheets showing elements of art.
2. Preparation of sheets showing principles of art.
3. Colour Wheel, colour schemes (monochromatic, complementary, constructing, related hues)
4. Types of colours- Primary, Secondary, Tertiary, Cool and Warm Colours.
5. Optical illusions created by lines and colours.
6. Making simple landscapes in different mediums of coloring.
7. (Posters, Water, steadlers, Pastels and pencil shading)
8. Use of various methods and techniques to create simple designs for menu and greeting cards.
9. Creating paintings, wall hangings, pots, toys (stuffed and waste material) etc.
10. Form- study of forms-functional and non- functional.
11. Still life
12. Importance of 3- dimensional designs

**Recommended Readings**

1. Art in Everyday Life- Harriet Goldstein Mac Millan Co. New York.
2. Rendering with Pen & Ink- Robert W. Gill (Thames and Hudson Manual).
3. Colour Trends- Vol. I, Ethnic, Japanesque, High- Tech Colours, AIM Creative Products Pvt. Ltd.
4. Colour –A Guide to basic facts and concepts, John Wiley & Sons, New York.
5. A brief history of Indian Painting- Dr. L.C. Sharma, Publishing House Meerut.
6. A Hand Book of Indian Art, Sunil Khosa, Sundeep Prakashan Delhi.
7. Elements of Indian Art, S.P. Gupta, Shashi Prabha Asthana, D.K. Print World, New Delhi.


  
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ABILITY ENHANCEMENT COURSES(LANGUAGE)

## Semester I

**FD-131 English-I  
Theory**

Credit: 2

Duration of class: 2hrs /week

Duration of Exam: 3hrs.

Total Marks: 50

Exam: 40

Int. Ass.: 10

**INSTRUCTIONS TO EXAMINER**

- There will be one paper of 50 marks, 10 marks are reserved for internal assessment.
- Short-answer questions: The examiner will set *eight* short questions from **Unit I and Unit II**, out of which a student must attempt any *five* (in not more than 40-60 words each). (15 marks)
- Long answer-question: The examiner shall give *four* questions from **Unit I and II**. The student will attempt any *three* (in 80-150 words each). (15 marks)
- The Examiner shall either give Translation from Vernacular to English or Correction of sentences from Unit III. (5 Marks).
- The Examiner shall either give Letter Writing or Notice Writing from Unit IV. (5 Marks).

**COURSE OBJECTIVES:**

- To help students to comprehend the role of literary and linguistic skills in their overall development.
- To work on grammar and communicative English and to use the standard diction, grammar, and mechanics of English language
- To enhance the reading and writing abilities of the students through textual analysis
- To enhance their ability for critical appreciation and interpretation of literary texts

**Unit-I****1 Poetry**

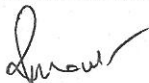
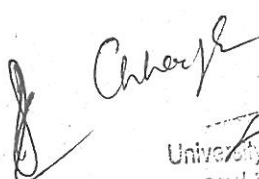
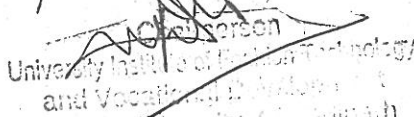
- Maya Angelou's "I Know Why the Caged Bird Sings"
- Wole Soyinka "Telephone Conversation"

**Unit-II****2. Prose**

- 'Spoken English and Broken English' by G.B. Shaw
- 'The Best Investment I Ever Made' by A.J. Cronin

**Unit-III****3. Applied Grammar:**

- Articles
- Correction of Sentences

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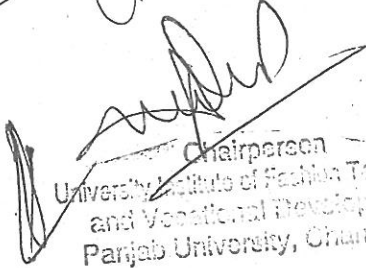
## Unit-IV

## 4. Writing Skills:

- a. Letter Writing (Formal and Informal letters)
- b. Notice Writing

## Recommended Readings-

1. *English at Work*, (Selection from Poetry & Prose), Eds T. Vijay Kumar, B. T. Seetha, A. V. Suresh Kumar, Y. L. Srinivas, New Delhi: Macmillan India Ltd.
2. *Interact: A Course in Communicative English*, Cambridge
3. Veerendra Mishra. *English Language Skills: A Practical Approach*, Cambridge, 2020.
4. Mohan, Krishna. (2000). *Developing Communication Skills*. Macmillan Indian Ltd
5. Hewings, Hartin (1999). *Advanced English Grammar*, Cambridge Uni. Press
6. Murphy Raymond. (1990). *Essential English Grammar*, Cambridge Uni. Press.

*Sumit Anand*  
  
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**SKILL ENHANCEMENT COURSES/ INTERNSHIP/DISSERTATION**

Semester -I

FD- 141 Hand Painting

(Practical)

Credit: 3

Duration of class: 6hr/week

Duration of Exam: 3hrs.

Total Marks: 75

Exam: 60

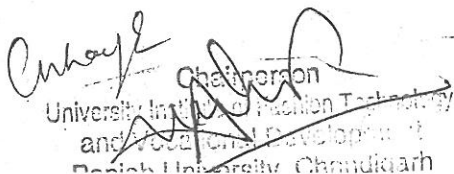
Int. Ass.: 15

**INSTRUCTIONS TO EXAMINER**

- 1 Practical examination will be of 3 hours duration
- 2 Question paper should cover all the topics
- 3 Internal choice may be given in all questions

**COURSE OBJECTIVES:**

- To create skill of fabric painting
  - To develop creativity and learn techniques of fabric painting
  - To train students to get self-employment.
  - To give the knowledge of organizing Exhibition
  - To acquire knowledge about the colour & colourchart
  - To decorate fabric with painted designs
1. **Tools and materials used for fabric painting** Fabric, Paints, Brushes, Paint palette, Frame, Paper, Bowl, Cleaning cloth.
  2. **Application of Fabric Painting**
    - Preparing fabric ready for painting
    - Transfer of design on to fabric
    - Mixing the colours
    - Post Treatment of fabrics
  3. **Brushing Techniques of Painting**
    - Brush control
    - Brush Loading
    - Types of brushes used for painting - Round tip brush, Flat tip brush, Liner brush, Foam brush, Outliners filled with paint.
  4. **Techniques of Fabric Painting**
    - Wet Brush Technique
    - Dry Brush Technique

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- Tipping
- Dot work
- Wet on wet
- Different strokes like – comma stroke, Chisel stroke, Flat comma, leaf stroke, S stroke, Tear drop, Line work and marbling

#### 5. Strokes of fabric painting

- Comma stroke
- Chisel stroke
- Flat comma
- Leaf stroke
- S stroke
- Tear drop
- Line work
- Marbling

#### Recommended Readings

1. Art in Everyday Life- Harriet Goldstein Mac Millan Co. New York.
2. Rendering with Pen & Ink- Robert W. Gill (Thames and Hudson Manual).
3. Colour Trends- Vol. I, Ethnic, Japanesque, High- Tech Colours, AIM Creative Products Pvt. Ltd.
4. Colour –A Guide to basic facts and concepts, John Wiley & Sons, New York.
5. A brief history of Indian Painting- Dr. L.C. Sharma, Publishing House Meerut.
6. A Hand Book of Indian Art, Sunil Khōsa, Sundeep Prakashan Delhi.
7. Elements of Indian Art, S.P. Gupta, Shashi Prabha Asthana, D.K. Print World, New Delhi.

  
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Semester –I

FD-142 YARN CRAFT

(Practical)

Credit: 3

Duration of class: 6hr/week

Duration of Exam: 3hrs.

Total Marks: 75

Exam: 60

Int. Ass.: 15

**INSTRUCTIONS TO EXAMINER**

- 1 Practical examination will be of 3 hours duration
- 2 Question paper should cover all the topics
- 3 Internal choice may be given in all questions


**COURSE OBJECTIVES:**

To acquire skills for various fabric construction techniques.

1. Knotting-
  - Making samples of different knots of Macramé.
  - Designing and construction of Articles -Wall hanging and Pot holder
2. Crochet-
  - Making samples of various stitches of Crochet
  - Designing and construction of Articles -Sling bag and Cushion covers
3. Knitting-
  - Making samples of basic stitches of hand knitting
  - Designing and construction of Knitting Articles -Muffler, gloves and socks

**Recommended Readings:**

- Reader's Digest Complete Guide to Needle Work ,The Reader's Digest Association, one Pleasantville, New York(Montreal,1979).
- Walters J. & Cosh S. " Crochet" Octopus Book Ltd., London(1989)

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**COMMON VALUE-ADDED COURSES****Semester I  
FD-151 BASICS OF COMPUTER APPLICATIONS****(Practical)****Credit: 2****Duration of class: 4hr/week****Duration of Exam: 3hrs.****Total Marks: 50****Exam: 40****Int. Ass.: 10****INSTRUCTIONS TO EXAMINER**

- 1 Practical examination will be of 3 hours duration
- 2 Question paper should cover all the topics
- 3 Internal choice may be given in all questions

**COURSE OBJECTIVES:**


- To impart basic computer knowledge to students.
- To enable students to concept of fundamentals and its applications.
- After completing the course, the incumbent is able to the use the computer for basic purposes of preparing his personnel/business letters, viewing information on internet (the web), sending mails, etc.

**Section-I****THEORETICAL BACKGROUND TO BE DONE IN PRACTICAL CLASSES****1. Knowing Computer**

- Introduction to Computer
- What is a computer
- Generation of computer
- Classification of Computers
- Configurations of Computers
- Computer Software and Hardware
- Computer Peripherals

**Section -II****(Exercise on Computer)****2. Understanding Windows**

- Windows Basics
- Start Windows .
- Using different windows simultaneously
- Moving through windows and mouse

  
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- Maximize/Minimize windows
- Use of help features
- Exit windows
- Starting an application
- Copy
- Move
- Delete files/ Directories/Folders
- Creating Directories/Folders
- Renaming files and directories/folders

### 3. Word Processing Package (MS Word)

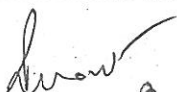
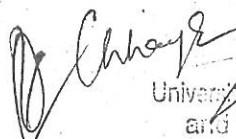
- Basics of Word Processing
- Text Selection
- Opening Documents and Creating Documents
- Saving Documents/Quitting Documents
- Cursor control
- Printing and Replacing Text
- Spell Check Feature/Autocorrect feature
- Grammar facility
- Retrieving often used text
- Auto text character formatting
- Page formatting
- Document Enhancement: Adding, Borders and shading, Adding Headers and Footers, setting up Multiple Documents, Data source, Merging Documents,
- Using Mail merge feature for labels and envelopes: Graphics and Using Templates and wizards

### 4. Making a Presentation (MS Power Point)

- Basics
- General Features
- Creating a Presentation
- Working with slides
- Inserting images
- Video
- Audio Clips
- Indents and line spacing
- Slide animations transactions
- Manual and Automatic slide show
- Color themes, etc.

### 5. Communications on Internet (e-mail messages)




- Basics of E-mail
  - What is an Electronic mail
  - Email Addressing
- Using emails
  - Opening Email account
  - Mailbox: Inbox and Outbox


- Creating and Sending a new Email
- Replying to an Email message
- Forwarding an Email message
- Sorting and Searching Emails
- Document Collaboration / attachments
- Instant Messaging and Collaboration
- Application and features of Cloud storage (Google drive, MS one drive etc)

**Reference Books:****Recommended Readings:-**

1. Pradeep K. Sinha, Priti Sinha, "Computer fundamentals" BPB Publications, New Delhi, 2011.
2. Mandeep Handa, Virnder Singh "Windows based Computer courses" ABS Publications, Jalandhar, 2011.
3. Suresh K. Basanra, "Computer Today" Galgotia Publications, New Delhi, 2008.
4. Ikvinderpal Singh, Baljinder Singh "Windows Based Computer Courses" Khanna Book Publications Co. (P) Ltd. 2011.

  
  
  
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Semester I

FD-152 MUSIC (VOCAL)

(Practical)

Credit: 2

Duration of class: 4hr/week

Duration of Exam: 3hrs.

Total Marks: 50

Exam: 40

Int. Ass.: 10

**INSTRUCTIONS TO EXAMINER:**

- The examiner shall consider, music practical file, practical based in syllabus and viva-voce for marking the students' performance.

**COURSE OBJECTIVES:**

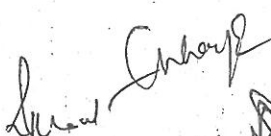
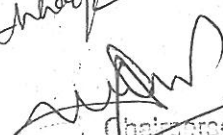
- Introduction of swara, raga, taal and alankars.
- To develop interest in Classical Music.

**Content:**

- 1) One Drut Khayal in each of the following Ragas with Alaps and Tanas- Alhaiya Bilawal, Bhoopali.
- 2) Ability to recite bols of the tals prescribed in the Course on hand- Teen Tala, Dadra.
- 3) Ability to play on Harmonium at least three alankars based on Shudh and Vikrit Swaras and sing along with it.
- 4) Ability to sing National Anthem.

**Recommended Readings:**

- |  |                                    |
|--|------------------------------------|
| a. Sangeet Bodh                        | : Paranjpe, Shartchandra Shridhar. |
| b. Sangeet Shastra Vigyan              | : Panna Lal Madan.                 |
| c. Sangeet Kala ka Itihas              | : Panna Lal Madan.                 |
| d. Sangeet Sar Part (I)                | : Mrs. Veena Mankaran.             |
| e. Raga Vigyan, Part I to IV           | : Pt. V.N. Patwardhan.             |
| f. Hamare Sangeet Ratan                | : Sangeet Karayalaya, Hathras.     |
| g. Sangeetanjali Part I to IV          | : Pt. Onkar Nath Thakur.           |
| h. Kramik Pustak Mallika Part I to III | : Pt. V.N. Bhatkhande.             |
| i. Raag Parichay Part I, II, III       | : Sh. H.C. Srivastav.              |
| j. Sangeet Kaumudi Part II             | : V.S. Nigam.                      |
| k. Sangeet Shastr Darpan Part II       | : Shanti Goverdhan.                |

  
  
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**Semester I**  
**FD- 153 DANCE**  
**(Practical)**

**Credit: 2**  
**Duration of class: 4hr/week**  
**Duration of Exam: 3hrs.**

**Total Marks: 50**  
**Exam: 40**  
**Int. Ass.: 10**

**Instructions to Examiner:**

- The examiner shall consider dance, practical file, practical based in syllabus and viva-voce for marking the students' performance.

**CouseObjectives:**

- Wholesome development of an individual.
- Introduction to *laya* and *taal*.

**Content:**

1) Teen Taal:

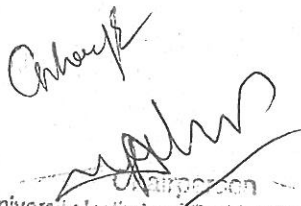
- Tatkar in Ekgun, Dugun and Chaugun laykaries. Theka and Tatkar with Ekgun, Dugun and Chaugun Laykaries.
- Salami-I
- Aamad-I
- Tora-I
- Tihai-I
- Tukra-I

2) Practice of entire techinal part in Teentaal on hand.

3) Theka of Teentaal on hand in Ekgun and Dugun Laykaries.

**Recommended Readings:**

1. Kathak Nritya Shiksha Part-I by Puru Dadhich
2. Kathak Nritya Shiksha Part-II, by Puru Dadhich



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## Semester I

## FD- 154 Physical Education

## (Practical)

Credit: 2

Duration of class: 4hr/week

Duration of Exam: 3hrs.

Total Marks: 50

Exam: 40

Int. Ass.: 10

## Instruction to the Examiner:

The examiner shall consider annual assignment of the student, physical education practical file, take practical exam & viva voce based on syllabus for grading the students performance in the examination.

## Course Objectives:

1. Wholesome development of an individual.
2. Knowledge of basic techniques involved in athletic events.
3. Practical knowledge of techniques and skills involved in various games out of syllabus.
4. Knowledge and benefit of yoga in day to day life.

## UNIT-I

**Athletics: Brief knowledge of track and field events. Layout of Track, Short Distance Races (including relay race)**

- [a] Technique for start, finishing and during running in a race.  
[b] General fouls in track events.

## UNIT- II

**Field Event: Throw: Shot put**

- [a] Dimension of the circle and specification of equipment used  
[b] Techniques of putting a shot  
[c] Fouls of throwing events.

## UNIT- III

**Anyone game from the following games:**

- [a] Badminton  
[b] Kho- Kho  
[c] Volleyball  
[d] Hockey  
[e] Yoga

## UNIT - IV

- [a] Brief knowledge of Asian Games and current national records in Athletics  
[b] Knowledge of prominent players of the games in syllabus

## REFERENCES:

1. A Text Book of Physical Education and Sports by Atwal and Kansal.
2. Rule Book of Athletics by Amateur Athletic Federation of India.

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3. Rule Book of Badminton by Badminton Federation of India.
4. Rules Book of Kho-Kho by Kho-Kho Federation of India.
5. Rule Book of Volley Ball by Volley Ball Federation of India.
6. Rule Book of Hockey by Hockey Federation of India
7. Various search engines found on internet



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## MAJOR COURSES

### Semester -II

#### FD 103 -GARMENT CONSTRUCTION-II

(Practical)

Credit: 2

Duration of class: 4hr/week

Duration of Exam: 3hrs.

Total Marks: 50

Exam: 40

Int. Ass.: 10

#### INSTRUCTION TO EXAMINER

There will be four questions in all covering entire syllabus. Internal choice may be given in the questions.

#### COURSE OBJECTIVES:

To learn various construction techniques.

- ❖ Drafting of Child's Bodice block and Sleeve block
- ❖ Drafting and Construction of following sleeves
  - Puff, Bell, Cap, Kimono, Reglan, Leg-o-mutton, Petal
- ❖ Drafting and Construction of following Collars
  - Peter Pan, Baby, Sailor, Cape, Polo, Mandarin, Shawl, Convertible.
- ❖ Drafting and Construction of following garments-
  - Bloomer
  - A-line frock
  - Yoked frock

#### Recommended readings:

- Thomas Anna Jacob, 'The Art of Sewing', UBS Publishers Distributors Ltd., New Delhi, 1994.
- Reader's digest complete guide to sewing, Reader's Digest (Australia) Pvt. Ltd.
- Verma G, "Cutting and Tailoring Theory", Asian Publishers, Delhi, 1999.
- Armstrong Helen Joseph, "Pattern making for fashion designing".
- Mullick Prem Lata, "Garment Construction Skills".

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**Semester-II**  
**FD- 104 GARMENT DESIGN-I .**  
**PRACTICAL**

**Credit: 3**

**Duration of class: 6hr/week**

**Duration of Exam: 3hrs.**

**Total Marks: 75**

**Exam: 60**

**Int. Ass.: 15**

**INSTRUCTION TO EXAMINER :**

1. Practical paper will be of 3 hours duration
2. Question paper should cover all the topics
3. Internal choice may be given in all questions

**COURSE OBJECTIVES:** To enable students to understand :Various fashion details and their sketching

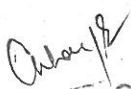
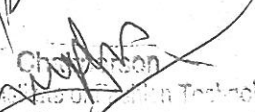
1. Sketching of various fashion details:

- Necklines
- Cuffs
- Pockets
- Frills & flounces and cascades
- Belts and bows
- Pleats
- Gathers
- Tucks
- Shirring
- Plackets
- Collars
- Sleeves
- Yokes

**Recommended readings:**

- Martin D., "Big Book of Fashion illustration", United Kingdom, Bats ford, London (2007).
- Seaman J. and Allen A., "Fashion Drawing", Om Books Internationals (Bats ford Ltd.).
- Tortora P., "Encyclopedia of Fashion Accessories", Fairchild Publications Inc. (2003).
- Charlotte M. C., "Fairchild's Dictionary of fashion", Fairchild Books, New York.
- Foster W., "How to draw and Paint Fashion", Walter Foster Publishing's, California.
- Bou Clair, "Simplicity".
- Singhal R. and Bharati K., "Fashion Rendering", Om Books Internationals, Noida.
- Bhargav R., "Design Ideas & Accessories", B.Jain Publisher's Ltd., New Delhi.
- Fernandez A. and Roig G. M., "Drawing for Fashion Designers".
- Mc Cullum G. L., "4000 Flower & Plant Motifs", a sourcebook, BT Bats ford, London.
- Kathryn, M. & Janine, M. (1999). Illustrating Fashion. Blackwell.



  
  
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- Bina, A. (2005). Fashion Sketchbook. Om Book.
- Kathryn, M. (2001). Fashion Source Book. Om Book.
- Ireland, J.P. (2005). Fashion Design Drawing & Presentation. Om Book.
- Ireland, J.P. (1995). Fashion Design Illustration Children. B.T. Batsford.

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## MINOR COURSES

### Semester-II

#### FD 113-TEXTILE SCIENCE-II THEORY

Credit: 2

Duration of class: 2hr/week

Duration of Exam: 3hrs.

Total Marks: 50

Exam: 40

Int. Ass.: 10

#### INSTRUCTION TO EXAMINER

1. There will be total nine questions carrying equal marks. Two questions from each unit and one compulsory question covering all the units.
2. Five questions will be attempted in all. Question No. I will be compulsory, carrying short answer type questions, fill in the blanks or true/false.
3. Each question will carry equal marks.

#### COURSE OBJECTIVES:

- Types of yarns
- Methods of spinning
- Laundry reagents

#### UNIT I

1. Types of yarn –
  - Spun and filament-
  - Simple yarns and its types
  - Novelty yarns and its types
  - Bulk & Textured yarns- methods of making textured yarns

#### UNIT-II

2. Spinning – mechanical and chemical
  - Mechanical spinning - Ring spinning, open end spinning, DREF (Friction Spinning),
  - Chemical spinning – Dry spinning, wet spinning, melt spinning

#### UNIT III

3. Soaps and detergents-Components and manufacturing process
4. Difference between soaps and detergents
5. Blues- Types and uses.

#### UNIT-IV

6. Bleaches- Types and Application.
7. Stiffening agents- Types, preparations and application.



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**Recommended readings:**

- Vilensky, "Textile Science", CBS Publication, New Delhi, 1999.
- Mishra S.P., "A Textbook of Fiber Science and Technology", New Age Intl., Delhi 2000.
- Eric Oxtoby, "Spun Yarns, Technology, Structure and Applications, Wiley-InterScience, NY, 1978.
- Corbman, "Textiles: Fiber to Fabric" Mc Graw Hill
- Kadolph, S.J, "Textiles", Tenth Edition, Dorling Kindersley, 2009.
- Tortora, P.G., "Understanding Textiles", Mac Millan, Publishing Co, New York, 1978.
- Hollen, N and Saddler. J, "Textiles" Mac Millan, London, 1968!

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**Semester-II**  
**FD- 113 TEXTILE SCIENCE-II**  
**PRACTICAL**

**Credit: 1**

**Duration of class: 2hr/week**

**Duration of Exam: 3hrs.**

**INSTRUCTION TO EXAMINER**

**Total Marks: 25**

**Exam: 20**

**Int. Ass.: 05**

1. There will be three questions in all.

**COURSE OBJECTIVES:**

- To help students to understand various types of yarns and fabric properties

- 1 Identification of yarn
- 2 Determination of twist.
- 3 Stain removal
- 4 Preparation and application of starches- arrowroot, rice flour, maida and gum Arabic.

**Recommended readings:**

- Vilensky, "Textile Science", CBS Publication, New Delhi, 1999.
- Mishra S.P., "A Textbook of Fiber Science and Technology", New Age Intl., Delhi 2000.
- Eric Oxtoby, "Spun Yarns, Technology, Structure and Applications, Wiley-InterScience, NY, 1978.
- Corbman, "Textiles: Fiber to Fabric" Mc Graw Hill
- Kadolph, S.J, "Textiles", Tenth Edition, Dorling Kindersley, 2009.
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- Hollen, N and Saddler. J, "Textiles" Mac Millan, London, 1968.

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**SEMESTER II**  
**FD- 114 TEXTILE DESIGN -II**

**PRACTICAL**

**Credit: 3**

**Duration of class: 6 hr/week**

**Duration of Exam: 3hrs.**

**INSTRUCTION TO EXAMINER**

There will be two questions in all covering the entire syllabus.

**Total Marks: 75**

**Exam: 60**

**Int. Ass.: 15**

**COURSE OBJECTIVES:**

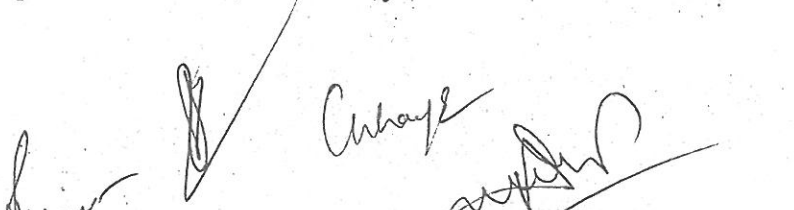
To enable students to develop practical skills of printing.

1. Techniques of Printing

- a) Block Printing –
  - a) Introduction
  - b) Single, Double & Multi Colored printing
  - c) Different Layouts-Central, Corner, Border and All over
  - d) Preparation of article- Dupatta/ Stoles/Scarf
- b) Stencil Printing –
  - a) Introduction
  - b) Preparation of Stencil (Positive and Negative stencils)
  - c) Techniques of Stencil printing – sponge, spray, drybrush, dabbing, texture impressions, resist(fevicol/tape/resin)
  - d) Preparation of article- T-shirt/ Table mats/ Napkins
- c) Screen Printing-
  - a) Introduction
  - b) Preparation of Screens (Enamel Paint and Photographic screens )
  - c) Preparation of article – Cushion Covers/ Bedsheets/Curtains

**Recommended readings:**

- Shenai, V.A, "Technology of Textile Processing, Technology of Printing (3rd edition), Sewak Publications, Bombay 1998.
- Shenai VA "Technology of Textile Processing, Technology of dyeing (4th edition), Sewak Publications, Bombay 1998.
- Textiles by Hollen Saddler- Macmillian Publishing Company, New York Understanding Textiles By P S Tortora-prentice Hall Inc., New Jersey

  
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and Vocational Development  
Panjab University, Chandigarh

1407

## INTER-DISCIPLINARY COURSE

Semester-II

### FD-122 SUSTAINABILITY IN EVERYDAY LIFE

(THEORY)

Credit: 2

Duration of class: 2 hr/week

Duration of Exam: 3hrs.

Total Marks: 50

Exam: 40

Int. Ass.: 10

#### INSTRUCTION TO EXAMINER

1. Each theory paper will be of three hours duration
2. Question paper will have four units.
3. A total of nine questions comprising of two questions from each section and one compulsory question of short answer type covering the whole syllabus.
4. Student will attempt one question from each UNIT and the compulsory question
5. All questions may carry equal marks, unless specified

#### COURSE OBJECTIVES: To impart knowledge of

- Terms related to sustainability
- Sustainable practices at home

#### Unit -I

1. Terminology: Sustainability, 3R's of sustainability, Eco-labels, biodegradable and non biodegradable waste, E-Waste, Zero waste concept, Carbon Foot Print, Fair trade, Green washing, life cycle assessment, Circular economy

#### Unit -II

2. Sustainable Development: Definition and Concept
3. Five P's of Sustainable Development: People, planet, prosperity, peace and partnership
4. Factors of Sustainability

#### Unit -III

5. Sustainable practices at home
6. Different ways to be sustainable in everyday life
7. Sustainable brands in everyday life

#### Unit -IV

8. Waste management: Definition and Types
9. Concept of Waste management
10. Government Initiatives for Sustainable development


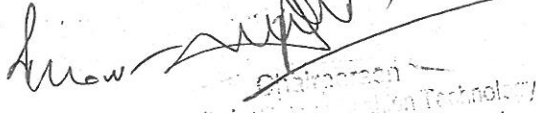

#### Recommended readings:

1. Cradle to Cradle: Remaking the Way We Make Things By William McDonough & Michael Braungart

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and Environmental Management

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2. The Upcycle: Beyond Sustainability – Designing for Abundance by William McDonough & Michael Braungart
3. Grow Food For Free: The sustainable, zero-cost, low-effort way to a bountiful harvest by Huw Richards
4. Strategy for Sustainability: A Business Manifesto by Adam Werbach
5. Zero Waste Sewing: 16 projects to make, wear and enjoy by Elizabeth M Haywood Cootalaa Press
6. 50 Nifty Thrifty Upcycled Fashions: Sew Something from Nothing by Cynthia Anderson, Stackpole Books
7. Wear, Repair, Repurpose: A Maker's Guide to Mending and Upcycling Clothes by Lily Fulop, Countryman Press
8. Recycling in Textiles by Youjiang Wang , Woodhead Publishing Ltd
9. Wise Craft Quilts: A Guide to Turning Beloved Fabrics Into Meaningful Patchwork by Blair Stocker, Roost Books
10. Creative Recycling in Embroidery by Val Holmes , Batsford Ltd
11. Waste Recycling and Reuse by Sterling , Sterling Publishers
12. Reduce, Reuse, Recycle: An Easy Household Guide (Green Books Guides) by Nicky Scott (Author), Axel Scheffler , Green Books
13. The Complete Technology Book on E-Waste Recycling , NPCS Board of Consultants & Engineers, Asia Pacific Business Press Inc.
14. Household Waste Recycling by Dr. Richard Waite , Earthscan Ltd

  
  
  
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Semester-II

**FD -122 Sustainability in Everyday Life**

**PRACTICAL**

**Credit: 1**

**Duration of class: 2 hr/week**

**Duration of Exam: 3hrs.**

**INSTRUCTION TO EXAMINER**

There will be two questions in all covering the entire syllabus

**Total Marks: 25**

**Exam: 20**

**Int. Ass.: 05**

**COURSE OBJECTIVES:** To impart knowledge of

- Terms related to sustainability
- Sustainable practices at home

1. Preparation of Audio- visual aids on sustainability and sustainable practices
2. Awareness generation on sustainability and sustainability practices through Prepared audio visual aids in neighbor hood (On Campus and off Campus)
3. Product development from waste (5 different products developed from different mediums)
4. Preparation of file and presentation on field work

**Recommended readings:**

1. Cradle to Cradle: Remaking the Way We Make Things By William McDonough & Michael Braungart
2. The Upcycle: Beyond Sustainability – Designing for Abundance by William McDonough & Michael Braungart
3. Grow Food For Free: The sustainable, zero-cost, low-effort way to a bountiful harvest by Huw Richards
4. Strategy for Sustainability: A Business Manifesto by Adam Werbach
5. Zero Waste Sewing: 16 projects to make, wear and enjoy by Elizabeth M Haywood Cootalaa Press
6. 50 Nifty Thrifty Upcycled Fashions: Sew Something from Nothing by Cynthia Anderson, Stackpole Books
7. Wear, Repair, Repurpose: A Maker's Guide to Mending and Upcycling Clothes by Lily Fulop, Countryman Press
8. Recycling in Textiles by Youjiang Wang , Woodhead Publishing Ltd
9. Wise Craft Quilts: A Guide to Turning Beloved Fabrics Into Meaningful Patchwork by Blair Stocker, Roost Books
10. Creative Recycling in Embroidery by Val Holmes , Batsford Ltd
11. Waste Recycling and Reuse by Sterling , Sterling Publishers
12. Reduce, Reuse, Recycle: An Easy Household Guide (Green Books Guides) by Nicky Scott (Author), Axel Scheffler , Green Books
13. The Complete Technology Book on E-Waste Recycling , NPCS Board of Consultants & Engineers, Asia Pacific Business Press Inc.
14. Household Waste Recycling by Dr. Richard Waite , Earthscan Ltd

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## ABILITY ENHANCEMENT COURSE

Semester II

FD- 132 English Language and Communication Skills-II

Theory

Credit- 2

Duration of Class-2hrs/week

Duration of Exam- 3hrs

Max. Marks- 50

Paper- 40

Internal Assessment- 10

### Instructions to Examiner:

- There will be one paper of 50 marks, 10 marks are reserved for internal assessment.
- Short-answer questions: The examiner will set *eight* short questions from **Unit I and Unit II**, out of which a student must attempt any *five* (in not more than 40-60 words each). (15 marks)
- Long answer-question: The examiner shall give *four* questions from **Unit I and II**. The student will attempt any *three* (in 80-150 words each). (15 marks)
- The Examiner shall give four short questions from **Unit III**, Out of which a student must attempt any Two (in not more than 40-60 words each). (5 Marks)
- The Examiner shall either give Precis writing or Paragraph Writing from **Unit IV**. (5 Marks).

### Course Objectives:

- To enable the students to understand how literature provides the opportunity for intellectual and imaginative participation in various modes of human thought and values
- To work on grammar and communicative English and to use the standard diction, grammar, and mechanics of the English language
- To enhance the reading and writing abilities of the students through textual analysis
- To enhance their ability for critical appreciation and interpretation of literary texts

### Unit-I

#### 1 Poetry

- a. R. Parthasarathy "From Homecoming"
- b. Wilfred Owen "Anthem for Dommed Youth"

### Unit-II



**2. Prose**

- a. The Conjuror's Revenge by Stephen Leacock
- b. I Have a Dream by Martin Luther King Jr.

**Unit-III****3. Listening Skills**

- a. The Listening Process, Types of Listening
- b. Essentials for Good Listening, importance and art of developing listening habits

**Unit-IV****4. Writing Skills :**

- a. Precis Writing
- b. Paragraph Writing

**Recommended Readings-**

1. English at Work, (Selection from Poetry & Prose), Eds T. Vijay Kumar, B. T. Seetha, A. V. Suresh Kumar, Y. L. Srinivas, New Delhi: Macmillan India Ltd.
2. Interact: A Course in Communicative English, Cambridge
3. Veerendra Mishra. *English Language Skills: A Practical Approach*, Cambridge, 2020.
4. A Course in Listening and Speaking-I by V. Sasikumar et. al., Foundation Books
5. Gupta, Sagarmal and Alpana Gupta. (2009). Grammar and Composition for Communication. Orient Black Swan.
6. Hewings, Hartin (1999). Advanced English Grammar, Cambridge Uni. Press & Murphy Raymond. (1990). Essential English Grammar, Cambridge Uni. Press.

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 Punjab University, Chandigarh



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## SKILL ENHANCEMENT COURSES (SEC)

Semester II

FD-143 DECORATIVE DYEING

PRACTICAL

Credit: 3

Duration of class: 6 hrs/week

Duration of Exam: 3hrs.

Total Marks: 75

Exam: 60

Int. Ass.: 15

### INSTRUCTION TO EXAMINER

1. Practical paper will be of 3 hours duration
2. Question paper should cover all the topics
3. Internal choice may be given in all questions

**COURSE OBJECTIVES:** To acquaint students with different types of dyeing techniques.

### Content:

1. Equipments and material to be used for tie and dye.
2. Preparation of fabric and article before dyeing
3. Techniques of dyeing-
4. Texture- Marbelling, Twisting and Coiling
5. Knotting-length, square, triangle and all over design
6. Folding- Simple stripes, Edge stripes, folded square
7. Tritik-Single cloth, double cloth
8. Ruching- Band of textures
9. Chevron Spiral folding method
10. Several techniques in one design
11. Submission of Articles with different dyeing techniques- Dupatta/T-shirt/Cushion cover

### Recommended Readings

- Shenai VA "Technology of Textile Processing. Technology of dyeing" (4th edition), Sewak Publications, Bombay 1998.
- Corbamna, PB Textile Techniques (6th Edition), McGraw Hill Book Co. 1983.
- Shenai, V Technology of Textile Processing, Technology of printing (3rd edition), Sewak Publications, Bombay 1998.

*Shenai*  
*Chhaya*  
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Semester II

**FD- 144 Basic Hand Embroidery**

**PRACTICAL**

**Credit: 3**

**Duration of class: 6 hrs/week**

**Duration of Exam: 3hrs.**

**Total Marks: 75**

**Exam: 60**

**Int. Ass.: 15**

**INSTRUCTION TO EXAMINER**

1. Practical paper will be of 3 hours duration
2. Question paper should cover all the topics
3. Internal choice may be given in all questions

**COURSE OBJECTIVES**

To impart knowledge about basic hand embroidery stitches.

Application of various hand embroidery stitches in making of different articles.

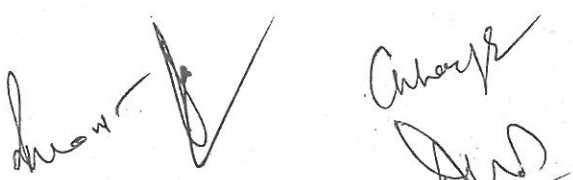
- Hand embroidery- Introduction, tools and supplies, types.
- Motif- Meaning, types, placement methods
- Tracing method
- Catalogue of different motifs
- Hand embroidery stitches- Running, stem, Back stitch, satin, French knot, fly stitch, feather stitch, lazy daisy stitch, herringbone stitch, bullion knot stitch, couching stitch and drawn thread work.
- Bead work, mirror work

**File & Project work- (Any two articles)**

Handkerchief set/ Table runner/ Napkins/Embroidery frame

**Recommended Readings**

- Reader's Digest Complete Guide to Needle Work ,The Reader's Digest Association, one Pleasantville, New York(Montreal,1979).
- Recommended Readings: Snook Barbara," Creative Art of Embroidery", Numbly Pub. Group Ltd, London,1972  
Reader's Digest Complete Guide to Needle Work ,The Reader's Digest Association, one Pleasantville, New York (Montreal,1979)



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## COMMON VALUE-ADDED COURSES

Semester II

### FD- 154 BASICS OF COMPUTER APPLICATIONS PRACTICAL

Credit:2

Duration of class: 4 hrs/week

Duration of Exam: 3hrs.

Total Marks: 50

Exam: 40

Int. Ass.: 10

#### INSTRUCTION TO EXAMINER

1. Practical paper will be of 3 hours duration
2. Question paper should cover all the topics
3. Internal choice may be given in all questions

#### COURSE OBJECTIVES:

- To impart basic computer knowledge to students.
- To enable students to concept of fundamentals and its applications.
- After completing the course the incumbent is able to the use the computer for basic purposes of preparing his personnel/business letters, viewing information on internet (the web), sending mails, etc.

#### Section-I

#### THEORETICAL BACKGROUND TO BE DONE IN PRACTICAL CLASSES

- Basics of Computer Memory (Primary and Secondary Memory)
- Secondary storage media devices
- Operating System(OS)
  - Introduction
  - Function performed by an OS
  - Types of OS
  - Brief Working of OS
- Technologies involved in Internet
  - WWW
  - Elements of WWW
  - Client Systems
  - Server computers
  - Websites
  - Web Browsers
  - Hyperlink
  - Hypertext/Hypermedia

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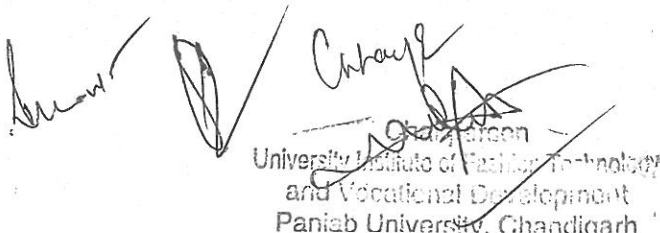
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- Configuration and applications of Internet
- Bluetooth
- Wi-Fi
- Search Engines.

**Section –II**  
**(Exercise on Computer)**

**1. Spreadsheet Package(MS-Excel)**

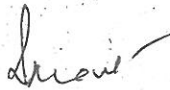
- 
- Worksheet Basics
- Data Entry in Cells: Entry of numbers, text and formulae
- Moving data in a worksheet
- Moving around in a worksheet
- Selecting Data Range,
- Using the interface (Toolbars, Menus) Editing Basics
- Working with workbooks
- Saving and Quitting
- Cell referencing.
- Formatting and Calculations: Calculations and worksheets
- Working with Formulae
- Efficient Data Display with Data formatting (number formatting, data formatting, etc.)
- Working with Ranges
- Worksheet Printing
- Working with Graphs and Charts:
  - Adding/Formatting Text Data with Auto format
  - Creating Embedded Chart using chart wizard, sizing and moving parts
  - Updating charts
  - Changing chart types
  - Creating separate charts
  - Chart wizard
  - Adding Titles
  - Legends
  - Gridlines
  - Printing Charts
- Database Management
  - Finding records with Data form
  - Adding/Deleting Records
  - Filtering Records in a worksheet
- Functions and Macro
  - Worksheet with worksheet function using function-wizard
  - Creating Macros
  - Record Macros
  - Running Macros

  
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- Assigning Macros to Buttons
- Multiple worksheet and scanners.

### Recommended Readings

1. Pradeep K. Sinha, Priti Sinha, "Computer fundamentals" BPB Publications, New Delhi, 2011.
2. Mandeep Handa, Virnder Singh "Windows based Computer courses" ABS Publications, Jalandhar, 2011.
3. Suresh K. Basanra, "Computer Today" Galgotia Publications, New Delhi, 2008.
4. Ikvinderpal Singh, Baljinder Singh "Windows Based Computer Courses" Khanna Book Publications Co. (P) Ltd. 2011.



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**Semester II**

**FD- 158 Physical Education  
PRACTICAL**

**Credit:2**

**Duration of class: 4 hrs/week**

**Duration of Exam: 3hrs.**

**Total Marks: 50**

**Exam: 40**

**Int. Ass.: 10**

**INSTRUCTION TO THE EXAMINER:**

The examiner shall consider annual assignment of the student, physical education practical file, take practical exam & viva voce based on syllabus for grading the students performance in the examination.

**COURSE OBJECTIVES:**

1. Wholesome development of an individual.
2. Knowledge of basic techniques involved in athletic events.
3. Practical knowledge of techniques and skills involved in various games out of syllabus.
4. Knowledge and benefit of yoga in day to day life.

**UNIT-I**

**Athletics: Brief knowledge of track and field events. Layout and marking of Track, Middle Distance Races**

- [a] Technique for start, finishing and during running in a race.
- [b] General fouls in track events.

**UNIT- II**

**Field Event: Throw: Discus Throw**

- [a] Dimension of the circle and specification of equipment used
- [b] Techniques of putting a shot
- [c] Fouls of throwing events.

**UNIT- III**

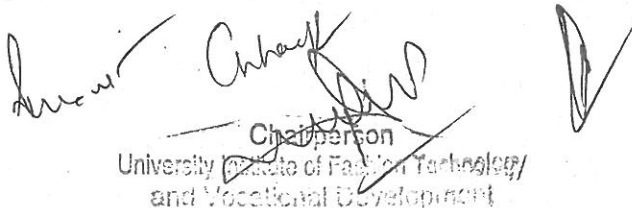
**Anyone game from the following games:**

- [a] Badminton
- [b] Kho- Kho
- [c] Volleyball
- [d] Hockey
- [e] Yoga

**UNIT - IV**

- [a] Brief knowledge of Olympic Games
- [b] Olympic records and World records in Athletic events.
- [c] Knowledge of prominent players of the games in syllabus
- [d] Brief knowledge of Awards and Honors in Various Games.

**REFERENCES:**

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1. A Text Book of Physical Education and Sports by Atwal and Kansal.
2. Rule Book of Athletics by Amateur Athletic Federation of India.
3. Rule Book of Badminton by Badminton Federation of India.
4. Rules Book of Kho-Kho by Kho-Kho Federation of India.
5. Rule Book of Volley Ball by Volley Ball Federation of India.
6. Rule Book of Hockey by Hockey Federation of India
7. Various search engines found on internet

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**Semester II**

**FD- 156 MUSIC (VOCAL)**

**PRACTICAL**

**Credit:2**

**Duration of class: 4 hrs/week**

**Duration of Exam: 3hrs.**

**Total Marks: 50**

**Exam: 40**

**Int. Ass.: 10**

**INSTRUCTION TO THE EXAMINER:**

The examiner shall consider, music practical file, practical based in syllabus and viva-voce for marking the students' performance.

**COURSE OBJECTIVES:**

- Introduction of swara, raga, taal and alankars.
- To develop interest in Classical Music.

**Content:**

- 1) One Drut Khayal in each of the following Ragas with Alaps and Tanas- Yaman, Kafi.
- 2) Ability to recite bols of the talas prescribed in the Course on hand- Ek Tal, Kehrwaa.
- 3) Ability to play on Harmonium at least three alankars based on Shudh and Vikrit Swaras and sing along with it.

**Recommended Readings:**

- |  |                                    |
|--|------------------------------------|
| l. Sangeet Bodh                        | : Paranjpe, Shartchandra Shridhar. |
| m. Sangeet Shastra Vigyan              | : Panna Lal Madan.                 |
| n. Sangeet Kala ka Itihas              | : Panna Lal Madan.                 |
| o. Sangeet Sar Part (I)                | : Mrs. Veena Mankaran.             |
| p. Raga Vigyan, Part I to IV           | : Pt. V.N. Patwardhan.             |
| q. Hamare Sangeet Ratan                | : Sangeet Karayalaya, Hathras.     |
| r. Sangeetanjali Part I to IV          | : Pt. Onkar Nath Thakur.           |
| s. Kramik Pustak Mallika Part I to III | : Pt. V.N. Bhatkhande.             |
| t. Raag Parichay Part I, II, III       | : Sh. H.C. Srivastav.              |
| u. Sangeet Kaumudi Part II             | : V.S. Nigam.                      |

Sangeet Shastr Darpan Part II : Shanti Goverdhan

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Semester II  
FD- 157 DANCE  
PRACTICAL

Credit:2

Duration of class: 4 hrs/week

Duration of Exam: 3hrs.

Total Marks: 50

Exam: 40

Int. Ass.: 10

**Instructions to Examiner:**

- The examiner shall consider dance, practical file, practical based in syllabus and viva-voce for marking the students' performance.

**Objectives:**

- Wholesome development of an individual.
- Introduction to *laya* and *taal*.


**Content:**

- 1) Teen Taal:
  - a. Tatkar in teentaal in Ekgun, Dugun and Chaugun laykaries.
  - b. Thaat-I
  - c. Tora-I
  - d. Kavita-I
  - e. Tihai-I
- 2) Thaptaal:
  - a. Tatkar in Ekgun, Dugun, and Chaugun Layakaries.
  - b. Tora-II
  - c. Amad-I
  - d. Paran-I
  - e. Chakardar Paran-I
- 3) Practice of entire technical part in Teentaal and jhaptal on hand.
- 4) Practical Knowledge of Samyukta Mudras.
- 5) Ability to play nagma in Teentaal on Harmonium.

**Recommended Readings:**

1. Kathak Nritya Shiksha Part-I by Puru Dadhich
2. Kathak Nritya Shiksha Part-II, by Puru Dadhich









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**Under Graduate Programme in Fashion Designing (Semester I)**  
**Communication Skills in English-I**  
**Practical**

**Credit- 2**

**Duration of Class-4 hrs/week**

**Duration of Exam- 3hrs**

**Max. Marks- 50**

**Paper- 40**

**Internal Assessment- 10**

**Objectives:**

1. To enhance the learner's communication skills by giving adequate exposure in reading, writing, listening and speaking skills and the related sub-skills
2. To help the learners recognize and operate in various styles and registers in English
3. To impart better writing skills by sensitizing the learners to the dynamics of effective writing
4. To build up the learners' confidence in oral and interpersonal communication by reinforcing the basics of pronunciation

**Instructions to Examiner:**

The examiner shall consider the assignment of the student, practical file, take practical exam & viva voce based on the syllabus for evaluating the students performance in the examination.

**Unit-I**

**Communication:**

- a. Communication: Verbal and Non-Verbal Communication
- b. Types of Verbal and Non-verbal Communication
- c. Importance of Communication, Communication Barriers

**Unit II**


**Technical and Modern Communication**

- a. Blogs and Comments on Social Media
- b. Technology based Communication Tools. Video Conferencing
- c. Preparing a C.V.
- d. Book/Film Reviews

**Unit- III**

**Basic Language Skills: Grammar**

- a. Tenses, Common Errors in the Use of English
- b. Correction of Sentences
- c. Idioms and Phrases, Homophones

  
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- d. Articles and prepositions


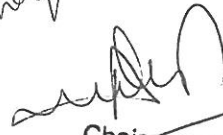
#### Unit IV

#### Activities

- a. Role Playing/ Enactment
- b. Pitch your Ideas in front of a Panel
- c. Mock Interviews, Debates. Speeches
- d. PowerPoint Presentations

#### Suggested Readings:

1. Binhan, Philip. Executive English, Longman Group, London, 3V, 1968 70.
2. Blundell Oxford's Middle Miss. English for Business and Commercial World, Middle Oxford University Press, Oxford, 1985.
3. Hanner, M.S and G.C. Wilson. Communication in Business and Professional Setting M.C.Grawhil, New York , 1989.
4. Hollet, Caster R., Lyon L & E. Tanne. In at the Deep End: Speaking Activities for Professional People, Oxford University Press, Oxford, 1995.
5. Hollett, V. Business Opportunities, Oxford University Press, Oxford 1994.
6. Scaunders & Owinn Alter. Effective Business English, Macmillan London, 1957.
7. Thill, J.V. and C.L. Bouce. Excellence in Business Communication, New York, 1986.

  
  
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**Under Graduate Programme in Fashion Designing (Semester II)**  
**Communication Skills in English-II**  
**Practical**

**Credit- 2**  
**Duration of Class-4 hrs/week**  
**Duration of Exam- 3hrs**

**Max. Marks- 50**  
**Paper- 40**  
**Internal Assessment- 10**

**Objectives:**

1. To develop good presentation skills by learning the essential steps for its planning and preparation, and effective use of verbal & non-verbal communication for delivering a business presentation.
2. To develop a deep understanding of the fundamentals of communication
3. To enhance language proficiency by providing adequate exposure to reading and writing skills
4. To orient the learners towards the functional aspects of language

**Instructions to Examiner:**

The examiner shall consider the assignment of the student, practical file, take practical exam & viva voce based on the syllabus for evaluating the students' performance in the examination.

**Unit-I**

**Introduction to Writing Skills**

- a. Letter/ Email Writing
- b. Request for Recommendation Letter.
- c. Request for information under Right to Information Act (RTI)
- d. Report Writing

**Unit-II**

**Listening and Speaking**


- a. The Process, Importance and types of Listening, Effective Listening: Principles and Barriers
- b. Conversations (Formal, Informal, Telephonic)- At the office, At the railway station, At the airport, At the travel agency, At the bank, At the doctor's clinic, At the hospital.
- c. Group Discussion, Declamation

**Unit- III**

**Reading Skills**

- a. Reading Comprehension (Reading with fluency and speed, Skimming and scanning, Identifying relevant information)
- b. Paraphrasing, Interpreting Graphs and Charts
- c. Analysis and Interpretation of Newspaper Articles,

**Unit- IV**


  
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**Activities**

- a. Story writing (Writing a story on People, Places, Objects etc.), Tweets
- b. Blogging: Fashion, Travel, Food, Culture, Personal blogs
- c. Dialogue Writing, Vocabulary and Language Games
- d. Debate, Declamation, Extempore

**Suggested Readings:**

1. Bellare, Nirmala. Reading Strategies. Vols. 1 and 2. New Delhi. Oxford University Press, 1998.
2. Bhasker, W. W. S & Prabhu, N. S.: English through Reading, Vols. 1 and 2. Macmillan, 1975.
3. Blass, Laurie, Kathy Block and Hannah Friesan. Creating Meaning. Oxford: OUP, 2007.
4. Brown, Ralph: Making Business Writing Happen: A Simple and Effective Guide to Writing Well. Sydney: Allen and Unwin, 2004.
5. Doughty, P. P., Thornton, J. G, Language in Use. London: Edward Arnold, 1973.
6. Freeman, Sarah: Written Communication. New Delhi: Orient Longman, 1977.
7. Glendinning, Eric H. and Beverley Holmstrom. Second edition. Study Reading: A Course in Reading Skills for Academic Purposes. Cambridge: CUP, 2004
8. Grellet, F. Developing Reading Sills, Cambridge: Cambridge University Press, 1981.
9. Hamp-Lyons, Liz and Ben Heasley. Second edition. Study Writing: A Course in Writing Skills for Academic Purposes. Cambridge: CUP, 2006

  
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**Curriculum and Credit Framework**  
**For**  
**Four Year Undergraduate Programme (NEP) in Fashion & Lifestyle Technology**  
**2023-24**

**Framework of B.Sc. Fashion and Lifestyle Technology (Honours)/ (Honours with Research)  
Undergraduate Programme**

**Major- Fashion & Lifestyle Technology  
Minor - Textiles and Merchandising/Textiles and Costumes/ Textiles and Apparel  
Manufacturing Technology**

<b>Discipline Specific Courses - Core-MAJOR</b>	
<b>Semester I (6 credits)</b>	<b>Semester II (6 credits)</b>
FLT-101: Visualizing Fashion -I (Pr.) (3) FLT-102: Introduction to sewing techniques (Pr.) (3)	FLT-201: Visualizing Fashion -II (Pr.) (2) FLT-202: Sewing Techniques (Pr.) (2) FLT-203: Pattern Development (Pr.) (2)
<b>Semester III (13 credits)</b>	<b>Semester IV (14 credits)</b>
FLT-301: Design Process -I (Pr.) (2) FLT-302: Garment Construction Technology - I (Pr.) (3) FLT-303: Advance Pattern Development-I(Pr.) (3) FLT-304: Trend Forecasting -II (Theory+ Practical) (2)	FLT-401: Design Process - II (Pr.) (3) FLT-402: Garment Construction Technology II (Pr.) (3) FLT-403: Advanced Pattern Development-II (Pr.) (3) FLT-404: Visualizing Fashion-IV (Pr.) (3) FLT-405: Traditional Indian Textiles & Embroideries (Pr.) (2)
<b>Semester V (16 credits)</b>	<b>Semester VI (16 credits)</b>
FLT-501: Advanced Draping and Grading (Pr.) (3) FLT-502: Commercial Clothing (Pr.) (3) FLT-503: Visualizing Fashion-V (Pr.) (3) FLT-504: Introduction to Entrepreneurship/IPR(Th)-(3) FLT-505: Digital Design (Adobe Illustrator) (Pr.) (2)	FLT-601: Apparel Production Control (Th.) (4) FLT-602: Apparel Quality Management (Th.)(4) FLT-603: Sustainable Fashion (Th.) (3) FLT-604: Pattern Making Through CAD (Pr.) (2) FLT-605: Fashion Styling and Image management (Pr.) (2)
<b>Semester VII (18 credits)</b>	<b>Semester VIII (18 credits)</b>
FLT-701: Fundamentals Of Research And Statistics (Th.+ field project )(4) FLT-702: Capstone Project- Socially Responsible Design Project: Design Development Pattern Development Product Development (8) FLT-703: Report Writing (2) FLT-704: Portfolio Making (Pr.) (2)	FLT-801: Display/ Seminar (Pr.) (3) FLT-802: Documenting and Report Writing (3)  <b>Following subjects are for those who want to do B.Sc. (Honours)</b> FLT-803: Advanced Digital Design (Pr.) (3) FLT-804: Intellectual Property Right (Th.) (4), FLT-801: Business Development Model (Theory+ Practical) (6)

*[Handwritten signatures and marks]*



<b>MINOR COURSE</b> <b>Offered by UIFT to own students: There are three options given to students of UIFT-</b> <b>Textiles and Merchandising*</b> <b>Textiles and Costumes**</b> <b>Textiles and Apparel Manufacturing Technology***</b>	
<b>Semester I (6 credits)</b> FLT-111: Fabric Technology-I(Th.) (3) FLT-112: Indian Textiles (Th.) (3)	<b>Semester II (6 credits)</b> FLT-211: Fabric Technology-II (Pr.) (2)  <b>CHOOSE ANY ONE SUBJECT OUT OF THE FOLLOWING:</b>  * FLT-212: Fashion Marketing (Th.) (4) **FLT-213: History of Indian Costumes (Th.) (4) ***FLT-214: Introduction to Apparel Industry (Th.) (4)
<b>Semester III (4 credits)</b>  FLT-311: Fabric Technology -III (Theory) (4)	<b>Semester IV (4 credits)</b>  FLT-411: Fabric Technology -IV (Pr.) (2)  <b>CHOOSE ANY ONE SUBJECT OUT OF THE FOLLOWING:</b>  *FLT-412: Fashion Merchandising and Retail Management (Th.) (2) **FLT-413: History of World Costumes (Th.) (2) ***FLT-414: Spreading and Cutting of Apparels (2)
<b>Semester V (4 credits)</b>  FLT-511: Global Sourcing (Project Based) (2)  <b>CHOOSE ANY ONE SUBJECT OUT OF THE FOLLOWING:</b>  *FLT-512: Basics of Knitting Technology (Pr.) (2) * or **FLT-513: Fashion Designers: Past and Present (Th) (2) ***FLT-514: Garment Analysis (2)	<b>Semester VI (4 credits)</b>  FLT-611: Basics of Weaving Technology (Pr.) (2)  <b>CHOOSE ANY ONE SUBJECT OUT OF THE FOLLOWING:</b>  *FLT-612: Visual Merchandising (Th+Pr) (2) **FLT-613: Project Based Costume Development (Pr.) (2) ***FLT-614: Work study for apparel Manufacturing (Th.) (2)
<b>Semester VII (4 credits)</b>  FLT-711: Fashion/Textile Field Survey (2)  <b>CHOOSE ANY ONE SUBJECT OUT OF THE FOLLOWING:</b>  Fashion Photography (Pr.) (2)	<b>Semester VIII (4 credits)</b> FLT-811: Multi- Disciplinary: MOOC Course (Minimum 2 credits) FLT-812: Export Merchandizing (2)  <b>In case any student does MOOC of 4 credits, then the student can opt out the other subject.</b>

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***Costing (2)	
<b>MULTI/INTER-DISCIPLINARY COURSES (3 credit each)</b>	
<b>Semester I</b>	<b>Semester II</b>
FLT-121: Innovative Design Thinking-I (Pr.) (2) FLT-122: Fashion Studies-I (Th.) (1)	FLT-221: Innovative Design Thinking-II(Pr.) (2) FLT- 222: Trend Forecasting -I (Project based) (1)
<b>Semester III</b>	
FLT- 321: Visualizing Fashion-III (Practical) (3)	
<b>ABILITY ENHANCEMENT COURSE (2 Credit each)</b>	
<b>Semester I</b>	<b>Semester II</b>
FLT- 131: English-I (Th.) (2)	FLT- 231: English-II (Th.) (2)
<b>Semester III</b>	<b>Semester IV</b>
FLT-321: English-III (Business Communication and Journalism-I) (2)	FLT-421: English-IV (Business Communication and Journalism-II) (2)
<b>SKILL ENHANCEMENT COURSE</b>	
<b>Semester I (3 Credits)</b>	<b>Semester II (3 Credits)</b>
FLT-141: Creative Techniques and Embroideries (Pr.) (3)	FLT-241: Basics of Draping (Pr.) (3)
<b>Semester III (2 Credits)</b>	<b>Semester IV</b>
FLT-341: Digital Design-I(Practical) (2) (Can be covered either in 3 <sup>RD</sup> or 4 <sup>TH</sup> Semester)	
<b>Semester V (4 Credits)</b>	<b>Semester VI</b>
FLT-541: In plant Training Project and Seminar (4)	
<b>Semester VII</b>	<b>Semester VIII(12 Credits)</b>
	FLT-841: Design Collection / Dissertation (Pr.) (12) (For those students who want to do B.Sc. Honours with Research)
<b>VALUE ADDED COURSES</b>	
<b>Semester I (2 Credits)</b>	<b>Semester II (2 Credits)</b>
FLT-151: Techniques of Resist Dyeing & Printing (Pr.)	FLT-251: Design Concept to Product Development (Pr.)
<b>Semester III</b>	<b>Semester IV (3 Credits)</b>
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**Framework of B.Sc. Fashion and Lifestyle Technology (Honours)/ (Honours with Research)  
Undergraduate Programme**

**Major- Fashion & Lifestyle Technology  
Minor - Textiles and Merchandising/Textiles and Costumes/ Textiles and Apparel  
Manufacturing Technology**

<b>Discipline Specific Courses – Core-MAJOR</b>	
<b>Semester I (6 credits)</b>	<b>Semester II (6 credits)</b>
FLT-101: Visualizing Fashion -I (Pr.) (3) FLT-102: Introduction to sewing techniques (Pr.) (3)	FLT-201: Visualizing Fashion -II (Pr.) (2) FLT-202: Sewing Techniques (Pr.) (2) FLT-203: Pattern Development (Pr.) (2)
<b>Semester III (13 credits)</b>	<b>Semester IV (14 credits)</b>
FLT-301: Design Process –I (Pr.) (2) FLT-302: Garment Construction Technology – I (Pr.) (3) FLT-303: Advance Pattern Development-I(Pr.) (3) FLT-304: Trend Forecasting -II (Theory+ Practical) (2)	FLT-401: Design Process - II (Pr.) (3) FLT-402: Garment Construction Technology II (Pr.) (3) FLT-403: Advanced Pattern Development-II (Pr.) (3) FLT-404: Visualizing Fashion-IV (Pr.) (3) FLT-405: Traditional Indian Textiles & Embroideries (Pr.) (2)
<b>Semester V (16 credits)</b>	<b>Semester VI (16 credits)</b>
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<b>Semester VII (18 credits)</b>	<b>Semester VIII (18 credits)</b>
FLT-701: Fundamentals Of Research And Statistics (Th.+ field project )(4) FLT-702: Capstone Project- Socially Responsible Design Project: Design Development Pattern Development Product Development (8) FLT-703: Report Writing (2) FLT-704: Portfolio Making (Pr.) (2)	FLT-801: Display/ Seminar (Pr.) (3) FLT-802: Documenting and Report Writing (3)  <b>Following subjects are for those who want to do B.Sc. (Honours)</b> FLT-803: Advanced Digital Design (Pr.) (3) FLT-804: Intellectual Property Right (Th.) (4), FLT-801: Business Development Model (Theory+ Practical) (6)



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**MINOR COURSE**

Offered by UIFT to own students: There are three options given to students of UIFT-  
Textiles and Merchandising\*  
Textiles and Costumes\*\*  
Textiles and Apparel Manufacturing Technology\*\*\*

<b>Semester I (6 credits)</b>	<b>Semester II (6 credits)</b>
FLT-111: Fabric Technology-I(Th.) (3) FLT-112: Indian Textiles (Th.) (3)	FLT-211: Fabric Technology-II (Pr.) (2)  <b>CHOOSE ANY ONE SUBJECT OUT OF THE FOLLOWING:</b>  * FLT-212: Fashion Marketing (Th.) (4) **FLT-213: History of Indian Costumes (Th.) (4) ***FLT-214: Introduction to Apparel Industry (Th.) (4)
<b>Semester III (4 credits)</b>	<b>Semester IV (4 credits)</b>
FLT-311: Fabric Technology -III (Theory) (4)	FLT-411: Fabric Technology -IV (Pr.) (2)  <b>CHOOSE ANY ONE SUBJECT OUT OF THE FOLLOWING:</b>  *FLT-412: Fashion Merchandising and Retail Management (Th.) (2) **FLT-413: History of World Costumes (Th.) (2) ***FLT-414: Spreading and Cutting of Apparels (2)
<b>Semester V (4 credits)</b>	<b>Semester VI (4 credits)</b>
FLT-511: Global Sourcing (Project Based) (2)  <b>CHOOSE ANY ONE SUBJECT OUT OF THE FOLLOWING:</b>  *FLT-512: Basics of Knitting Technology (Pr.) (2) * or **FLT-513: Fashion Designers: Past and Present (Th) (2) ***FLT-514: Garment Analysis (2)	FLT-611: Basics of Weaving Technology (Pr.) (2)  <b>CHOOSE ANY ONE SUBJECT OUT OF THE FOLLOWING:</b>  *FLT-612: Visual Merchandising (Th+Pr) (2) **FLT-613: Project Based Costume Development (Pr.) (2) ***FLT-614: Work study for apparel Manufacturing (Th.) (2)
<b>Semester VII (4 credits)</b>	<b>Semester VIII (4 credits)</b>
FLT-711: Fashion/Textile Field Survey (2)  <b>CHOOSE ANY ONE SUBJECT OUT OF THE FOLLOWING:</b>  Fashion Photography (Pr.) (2) ***Costing (2)	FLT-811: Multi- Disciplinary: MOOC Course (Minimum 2 credits) FLT-812: Export Merchandizing (2)  <b>In case any student does MOOC of 4 credits, then the student can opt out the other subject.</b>

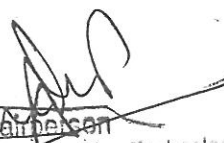
<b>MULTI/INTER-DISCIPLINARY COURSES (3 credit each)</b>	
<b>Semester I</b>	<b>Semester II</b>
FLT-121: Innovative Design Thinking-I (Pr.) (2) FLT-122: Fashion Studies-I (Th.) (1)	FLT-221: Innovative Design Thinking-II(Pr.) (2) FLT- 222: Trend Forecasting –I (Project based) (1)
<b>Semester III</b>	
FLT- 321: Visualizing Fashion–III (Practical) (3)	
<b>ABILITY ENHANCEMENT COURSE (2 Credit each)</b>	
<b>Semester I</b>	<b>Semester II</b>
FLT- 131: English-I (Th.) (2)	FLT- 231: English-II (Th.) (2)
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FLT-321: English-III (Business Communication and Journalism-I) (2)	FLT-421: English-IV (Business Communication and Journalism-II) (2)
<b>SKILL ENHANCEMENT COURSE</b>	
<b>Semester I (3 Credits)</b>	<b>Semester II (3 Credits)</b>
FLT-141: Creative Techniques and Embroideries (Pr.) (3)	FLT-241: Basics of Draping (Pr.) (3)
<b>Semester III (2 Credits)</b>	<b>Semester IV</b>
FLT-341: Digital Design-I(Practical) (2) (Can be covered either in 3 <sup>RD</sup> or 4 <sup>TH</sup> Semester)	
<b>Semester V (4 Credits)</b>	<b>Semester VI</b>
FLT-541: In plant Training Project and Seminar (4)	
<b>Semester VII</b>	<b>Semester VIII(12 Credits)</b>
	FLT-841: Design Collection / Dissertation (Pr.) (12) (For those students who want to do B.Sc. Honours with Research)
<b>VALUE ADDED COURSES</b>	
<b>Semester I (2 Credits)</b>	<b>Semester II (2 Credits)</b>
FLT-151: Techniques of Resist Dyeing & Printing (Pr.)	FLT-251: Design Concept to Product Development (Pr.)
<b>Semester III</b>	<b>Semester IV (3 Credits)</b>
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**SCHEME OF STUDIES**  
**Under Graduate Programme in B.Sc. Fashion and Lifestyle Technology (Honours)/**  
**(Honours with Research) Undergraduate Programme 2023-24. (NEP 2020)**  
**SEMESTER-I**

Sr. No.	Subject	Course code	Name of the Course	Credit (Th.+Pr.)		Theory Marks				Practical Marks					
				Th	Pr	Ext. Exam	Int. Exam	Int. Ass	Total	Ext. Exam	Int. Exam	Int. Ass	Total		
1.	Major	FLT-101	Visualizing Fashion -I		3							60		15	75
		FLT-102	Introduction to sewing techniques		3							60		15	75
2.	Minor	FLT-111	Fabric Technology-I	3		60		15							
		FLT-112	Indian Textiles	3		60		15							
3.	Interdisciplinary Course	FLT-121	Innovative Design Thinking-I		2							40		10	50
		FLT-122	Fashion Studies-I	1		20		5							
4.	Ability Enhancement Course	FLT-131	English-I	2			40	10							
5.	Skill Enhancement Course (SEC)	FLT-141	Creative Techniques and Embroideries		3								60	15	75
6.	Common Value-Added Course	FLT-151	Techniques of Resist Dyeing & Printing (Pr.)		2								40	10	50
8.	Total			9	13	22									

  
 Chairperson  
 University Institute of Fashion Technology  
 and Vocational Development  
 Panjab University, Chandigarh

**SCHEME OF STUDIES**  
**Under Graduate Programme in B.Sc. Fashion and Lifestyle Technology (Honours)/**  
**(Honours with Research) Undergraduate Programme 2023-24. (NEP 2020)**  
**SEMESTER-II**

Sr. No	Subject	Course code	Name of the Course	Credit (Th.+Pr.)			Theory Marks				Practical Marks										
				Th	Pr	Total	Ext. Exam	Int. Exam	Int. Ass	Total	Ext. Exam	Int. Exam	Int. Ass	Total							
1.	Major	FLT-201	Visualizing Fashion-II	2	2	2															
		FLT-202	Sewing Techniques	2	2	2															
		FLT-203	Pattern Development	2	2	2															
2.	Minor	FLT-211	Fabric Technology-II	2	2	2	40			10											
			<i>Choose any one subject out of the following to have a minor degree in Textiles and Merchandising* Textiles and Costumes** Textiles and Apparel Manufacturing Technology***</i>																		
		FLT-212	*Fashion Marketing	4		4	80			20											
		FLT-213:	** History of Indian Costumes			80			20												
		FLT-214	*** Introduction to Apparel Industry			80			20												
3.	Interdisciplinary Course	FLT-221	Innovative Design Thinking-II	2	2	2															
		FLT-222	Trend Forecasting -I (Project based)	1	1	1															
4.	Ability Enhancement Course	FLT- 231	English-II	2																	
5.	Skill Enhancement Course (SEC)	FLT-241	Basics of Draping	3		3															
6.	Common Value-Added Course	FLT-151	FLT-251: Design Concept to Product Development (Pr.)	2		2															
8.	Total			6	16	22															

*(Signature)*  
 Chairperson



**MAJOR COURSES****SEMESTER-1****FLT-101: VISUALIZING FASHION –I (PRACTICAL)****Course Credits: 3****Course Objective:**

- To enable students to understand the concept and techniques fashion illustration.
- To enable students to draw fashion and model figures communicating body language.
- To guide students to develop a personal style of illustration and presentation technique.

**Course Outcome:**

- Students will be able to develop the skill to create fashion through illustrating and imaging.
- Students will develop proficiency in observing, visualization and skillfully communicating fashion ideas in various medium.
- Students will be able to develop ability to generate creative ideas independently and collaboratively in traditional and digital mediums.

**Practical: 6 Pds/Week****Time for Paper: 4 Hours****Maximum Marks 75****Int. Asst. 15, Ext. Exam: 65****Instructions to the examiners:**

- The examiner will set questions covering the whole syllabus

**UNIT-I**

- Difference between a fashion model & a regular figure.
- Geometric fashion model with movable ball joints.
- Introduction to line drawing capturing the essence of a pose
- Relating a line drawing croque to a geometric croque.

**UNIT-II**

- Figure analysis through photographs as the initial introduction to the flesh figure.
- Style line placement on Croque's.
- Analysis of faces and hair style with emphasis on style lines.
- Analysis of hands & feet.
- Fashion model drawing: Balance, movement, body lines (model provided to study).
- Figure drawing in 3 dimensional qualities by soft rendering, giving stress at required points.

**Books Recommended:****Essential Reading:**

1. Tata Sharon Lee, "Inside Fashion Design", 1977, Francisco Canfield Press,.
2. Ireland, Patrick John, "Fashion Design Drawing and Presentation", 1996, B.T. Batsford, London.

**Further Reading:**

1. Allen and Seaman, "Fashion Drawing - The Basic Principles", 1994, B.T. Batsford, London,.
2. Seamn, Julian, "Professional Fashion Illustration", 1995, B.T. Batsford, London,.
3. Drake And Nicholas, "Fashion Illustrations", 1994, Thames and Hudson, London,.
4. Ablng Bina, "Fashion Sketch Book" 2006, by Fairchild publication.

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**SEMESTER 1**  
**FLT-102: INTRODUCTION TO SEWING TECHNIQUES (PRACTICAL)**

**Course Credits: 3**

**Course Objective:**

- To have knowledge of the types and working of tools and equipment used in sewing.
- To understand the basics of apparel construction.

**Course Outcomes:**

- The students will be able to handle and work with various tools and equipment used in sewing.
- They will be able to undertake basic apparel construction projects.

**Practical: 6 Pds/Week**

**Time for Paper: 4 Hours**

**Maximum Marks 75**

**Int. Asst. 15, Ext. Exam: 60**

**Instructions to the examiners:**

- Students will only prepare files and notes from UNIT-I of the syllabus. No questions will be set from UNIT-I of the syllabus.
- Questions will be set from UNIT-II only.
- Three questions with sub parts will be set and the students will be asked to attempt all the questions.
- Duration of the paper should be kept in mind while setting the questions.

**UNIT-I**

**1. Introduction to Terminology:**


- Grain
- Bias
- Selvedge
- Stay stitching
- Facing
- Binding
- Seam allowance
- Yardage
- Ease stitching

**2. Introduction to Tools and equipment's used in clothing construction**

- Measuring tools
- Marking tools
- Cutting tools
- Sewing tools
- Finishing tools

**3. Introduction to Sewing Machine: Its parts and their functions.**

- Common sewing machine problems and their remedies.

  
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**MINOR COURSE  
SEMESTER-1  
FLT-111: FABRIC TECHNOLOGY - I(THEORY)**

**Course Credits: 3**

**Course Objective:**

- To enable students to know and understand various fibre and yarn structures.

**Course Outcome:**

- Students will be able to apply the knowledge related to fiber and yarn properties in handling the textiles in design and development process of fashion products.
- They will be able to understand the technology, techniques and care used to enhance textile fibre properties that make them perform and look better and last longer.

**Theory: 3 Pds/ week**

**Time for Paper: 3 Hours**

**Maximum Marks 75**

**Int. Asst. 15, Ext. Exam: 60**

**Instruction to the Examiners:**

- Students will prepare assignment from Section A. There will be no question set from Section-A.
- Examiner will set a total of nine questions only from Section-B, comprising two questions from each unit, and one compulsory question of short answer type covering the whole syllabus.
- Students will attempt one question from each unit and the compulsory question.
- All questions will carry equal marks.

**SECTION A**

- Introduction to Textile Industry

**SECTION B**

**UNIT I**

- Definition: Textile fiber, yarn and fabric.
- Fibre classification based on their origin and constituents.
- Introduction to weaves and different types of fabric construction.

**UNIT II**

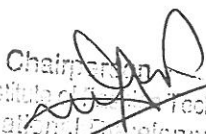
- Manufacturing and properties of different fibres: cotton, jute, linen, wool, silk, polyester, nylon, acrylic, elastomeric, rayon.
- Properties of Banana, Tencel, Bamboo and Corn fiber

**UNIT - III**

- Terminology of spinning: ginning, carding, combing, roving, drawing, lapping, slivering, staple, filament, wool, worsted, mechanical spinning, wet, dry and melt spinning.

**UNIT - IV**

- Type of yarns and their properties relevance to fabric behavior:
  - Simple yarns: singly, ply, cord yarns
  - Novelty yarns: slub, boucle, chenille, nubs, corkscrew, grenallem.
  - Textured yarns: stretch yarns, bulk yarns, core-spun yarns
  - Blended yarns

  
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and Vocational Development  
Panjab University

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**SEMESTER 1**  
**FLT-112: INDIAN TEXTILES (THEORY)**

**Course Credits:3**

**Course Objective:**

- To enable students to gain knowledge about the traditional textiles of different states of India with emphasis on texture, design and colour.
- To undertake visits to museums and acquaint the students with different techniques of development, care & storage of Traditional Textiles and Costumes of India.
- To enable students to undertake projects related to above and to learn to document the study.

**Course Outcome:**

- Students will be able to prepare and present projects on traditional textiles of different states of India.
- They will be able to skillfully document the craft for literary collection of the institution.

**Theory: 3 Pds/Week**

**Time for Paper: 4 Hours**

**Maximum Marks 75**

**Int. Asst. 15, Ext. Exam: 60**

**Instruction to the Examiners:**

- Examiner will set a total of nine questions, two questions from each unit, and one compulsory question of short answer type covering the whole syllabus.
- Students will attempt one question from each unit and the compulsory question.
- All questions will carry equal marks.

**UNIT-I**

**Northern Regions:**

- i) Kashmir - Shawls, Carpets, Namda, Gaba
- ii) Himachal Pradesh – Chamba Rumal, Kullu Shawls, Lingchay, Kinnauri Shawl
- iii) Punjab – Phulkari, Khes
- iv) Uttar Pradesh -Banarsi Brocades, Chikankari, Carpets

**UNIT- II**

**Eastern Regions:**

- i) Manipur - Moiraingphee, Leirum, Lasingphee and Phanek
- ii) Orissa - Appliqué work, Sambalpuri Ikat
- iii) Bengal - Kanthas, Baluchar and Jamdani

**UNIT- III**

**Southern Regions:**

- i) Karnataka –Kasuti, Ilkal sarees
- ii) Tamil Nadu –Kanjivaram Sarees
- iii) Andhra Pradesh - Pochampalli, Telia Rumal, Venkatgiri, Kalamkari

**UNIT- IV**

**Western Regions and Central Region:**

- i) Gujrat –Bandhani, Patolas, Sindh and Kutch Embroidery
- ii) Rajasthan –Bandhani, Sangneri, Bagru and Ajrakh, Pichwai

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- iii) Maharashtra - Irkal, Paithani, Narayan Peth, Khan Sarees, Mashru, Himroo  
iv) Madhya Pradesh - Chanderi Saree, Maheshwari Saree

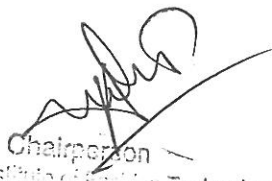
**Books Recommended:**

**Essential Reading:**

1. Rustam; J. Mehta, Masterpieces of Indian Textiles, (1970), D.B. Taraporevala Sons & Co., Pvt. Ltd.
2. Abraham T.M. Handicraft of India, Graphics Columbia, New Delhi, 1964, Mulk Raj Anand Marg, Vol. VIII, 1954.
3. Gupta Anu H. & Mehta S., Phulkari from Punjab: Embroidery in transition, 2019, Niyogi Books
4. Bhushan Brij Jamila, The Costume and Textiles of India, 1958, D.B. Taraporewala sons and Co., Ltd, Bombay.
5. Dongerkery, Kamala S. Romance of Indian Embroidery, 1951, Thacker & Co., Ltd. Bombay,
6. Dhamija Jasleen. The Kanthas of Bengal, 1971, The Times of India Annual.
7. Saraf D.N, "Indian Crafts", Vikas Publishing House Pvt. Ltd. 1982.
8. Das, Shukla, "Fabric Art- Heritage of India", Abhinav Publications, New Delhi, 1992.

**Further Readings:**

1. "Joyee Storey", The Thames and Hudson- Manual of Textile Printing.' (1974), "Thames and Hudson - London
2. Gillow J and Barnard Nicholas N, "Traditional Indian Textiles, Thames and Hudson, 1993.
3. Chattopadhyaya K, "Handicrafts of India", Wilsey Eastern ltd., New Delhi, 1995.
4. Agarwal, O.P, "Care and Presentation of Museum Projects-II", NRL, 1977.
5. Lynton Linda, "The Sari", Thames and Hudson, London, 1995
6. Chattopadhyaya K, "Handicrafts and Industrial Arts of India", Taraporevala sons & co. Pvt. Ltd. Mumbai, 1960.
7. Paine Sherla, "Embroidered Textiles", Thames and Hudson Ltd, 1990.

  
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**MULTI/INTER-DISCIPLINARY COURSES  
SEMESTER 1**

**FLT-121: INNOVATIVE DESIGN THINKING -I (PRACTICAL)**

**Course Credits: 2**

**Course Objective:**

- To understand design concepts and balanced abstract art forms.
- To understand illustration techniques.

**Course Outcome:**

- Students will be able to skillfully practice design creation.
- Students will develop aesthetic sense in observation, visualization and skill to communicate ideas in various medium.
- Students will be able to develop ability to generate creative ideas independently and collaboratively in traditional and digital mediums.

**Practical: 4 Pds/Week**

**Maximum Marks 50**

**Time for Paper: 4 Hours**

**Int. Asst. 10, Ext. Exam: 40**

**Instructions to the examiners:**

- No questions will be set from UNIT-I
- Students will prepare file and assignments from Unit I
- The examiner will set questions only from UNIT-II

**UNIT-I**

- Understanding the Elements and Principles of Visual Design.
- Meaning and importance of visual art forms.
- Exploration of ideas through doodling
- Art of accessory selection:
  - a) To make a fashion statement  
(jewellery, bags, shoes, belts, scarves etc.)
  - b) To create a fashionable lifestyle  
(Furniture, wall art, floor coverings, and other lifestyle products)

**UNIT-II**

- Understanding textures such as spontaneous, decorative, mechanical using various methods of drawing, painting, printing, bleaching, rubbing, spraying, staining, dyeing, burning etc.
- Understanding the importance of inspiration in creating motifs - naturalized, stylized, geometrical, and abstract.
- Position, Repetition and Spatial Intervals, Sequence, Rhythm, Balance All over Patterns, Line and Space, Vertical and Horizontal Lines, Diagonal and Curved Lines.
- The play of stripes (as in stripes & checks): Relationships, associations, emotions, feelings, visual representations
- Colour Theory: Colour wheel - primary, secondary, complimentary; transparency, opacity; hue, value - intensity, brightness; chroma - saturation, purity; temperature - warm, cold; retinal fusion or intermingling, harmony, contrast, simultaneous contrast, contrast of complimentary, colour sensibility.

**Books Recommended:**

**Essential Reading:**

1. Goldstein, Herriet, Art in Everyday Life. (1964), Studio Vista Limited.
2. Bride M Whelan, Colour Harmony", 1992, Rockfort Publishers.
3. Stockton and James, "Designers Guide to Colour", 1984, Chronicle Books, San Francisco.
4. Chijiwa, Hideaki, Colour Harmony", (10<sup>th</sup> ed.), 1992, Rockfort Publishers, USA.

**Further Reading:**

1. HerberRead, The meaning of Art, (1951) Feber and Feber Limited.
2. Maith and Graves, The art of Colour and Design. (1952), McGraw-Hill Book Company Inc.
3. Maith & Graves, Colour Fundamentals, (1952) McGraw-Hill Book Co. Inc.
4. Louis Walehonok, The Art of Three-Dimensional Design, (1959) Harper and Bros.
5. Chesking (Macmilla), Colours Guide for Marketing. (1954), The Macmillan Company, New York



**SEMESTER-1**  
**FLT-122: FASHION STUDIES- I(THEORY)**

**Course Credits: 1****Course Objective:**

- To provide students with an interdisciplinary understanding of Fashion Studies.
- To impart knowledge about the social, cultural, and economic impact and the concept of sustainability in fashion.
- To provide students with knowledge and insight into the ethical and sustainable work practices of influential fashion designers, brands, and institutions.

**Course Outcome:**

- Students will be able to demonstrate their understanding of the role of fashion in society.
- They will be able to critically analyse the impact fashion has on social, cultural, and economic front of the environment and community in general and on an individual in particular.
- They will develop the skill to appreciate the dynamic nature of fashion as a business, as a medium of communication and recognize the importance of ethical and sustainable practices in the fashion industry.

**Theory: 1 Pd/Week****Time for Paper: 3 Hours****Maximum Marks 25****Int. Asst. 5, Ext. Exam: 20****Instruction to the examiners:**

- Question paper will have four sections.
- Examiner will set a total of nine questions comprising two questions from each unit, and one compulsory question of short answer type covering the whole syllabus.
- Students will attempt one question from each unit and the compulsory question.
- All questions will carry equal marks.

**UNIT-I****Introduction to the History and Sources of Fashion**

1. History of Fashion: Evolution of fashion from ancient times to the present day.
2. Sources of Information: Different sources of information for studying fashion histories, such as museums, archives, books, and digital resources.
3. Factors Affecting Clothing: An in-depth analysis of various factors that influence clothing, such as protection, ritualism, identification, adornment, and social status.

**UNIT-II****Understanding Fashion and Design Principles**

1. Introduction and Definition of Fashion: Understanding the meaning and scope of fashion, different types of fashion, and fashion terminologies.
2. Elements of Design: Exploring different design elements such as line, shape, form, texture, and space.
3. Principles of Design: Understanding the principles of design, such as balance, proportion, rhythm, emphasis, and harmony.
4. Colour Wheel: An in-depth analysis of the colour wheel, primary, secondary, and tertiary colours, and colour schemes.

**UNIT-III****Fashion Movement and Theories**

1. Fashion Movement and Factors Influencing It: Understanding the various factors that influence fashion movement, such as social, cultural, and economic factors.

2. Fashion Forecasting and Cycles: Understanding the process of fashion forecasting, and different fashion cycles.
3. Theories of Fashion Adoption: Understanding the theories of fashion adoption, such as trickle-down theory, trickle-across theory, and trickle-up theory.

#### UNIT-IV

#### Fashion Designers, Brands, and Institutions

1. Fashion Designers and Brands: An in-depth analysis of national and international fashion designers and brands, their history, and contribution to the fashion industry.
2. Fashion Capitals of the World: Understanding the importance of different fashion capitals of the world, such as Paris, Milan, London, and New York.
3. Fashion Regulatory Bodies in India: Understanding the role of different fashion regulatory bodies in India, such as FDCI, FICCI, and CMAI.
4. Fashion Institutes: An overview of different fashion institutes in India, their curriculum, and contribution to the fashion industry.

#### **Books Recommended:**

#### **Essential Reading:**

1. Barnard, M. (2014). Fashion theory: A reader. Routledge.
2. Entwistle, J. (2000). The fashioned body: Fashion, dress and modern social theory. Polity Press.
3. Kawamura, Y. (2011). Fashion-ology: An introduction to Fashion Studies. Berg Publishers.
4. Miglani, N, Sharma, S, & Brar, P. (2018). A handbook of Fashion Management.

#### **Further Reading:**

1. Davis, F. (1992). Fashion, culture, and identity. University of Chicago Press.
2. Eicher, J. B., & Roach-Higgins, M. E. (1992). Definition and classification of dress: Implications for analysis of gender roles. Sex Roles, 27(7-8), 337-355.
3. Lipovetsky, G. (1994). The empire of fashion: Dressing modern democracy. Princeton University Press.

  
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**ABILITY ENHANCEMENT COURSE**  
**SEMESTER-1**  
**FLT-131: ENGLISH (THEORY)**

**Credits: 2**

**Course Objective:**

- To enable students to understand the spoken and written English language of varied complexity in most subjects of their chosen field; Fashion.
- To enable students to comprehend the role of literary and linguistic skills in their overall development.
- To enable students to gain accuracy in use of grammatically correct communicative English in general and in the language of their chosen field.

**Course Outcome:**

- The students will become independent users of English language and will be able to understand the spoken and written English language of varied complexity, both spoken and written, in context of the subjects they study in their chosen technical field; Fashion.
- The students will be able to comprehend the role of literary and linguistic skills necessary for their overall development.
- The students will gain accuracy in the use of grammatically correct communicative English and will be able to use the language in the presentation of their creative ideas.

**Theory: 2 Pds./Week**

**Maximum Marks: 50**

**Time for Paper: 3 Hours**

**Int. Asst. 10, Int. Exam: 40**

**Instructions for examiners:**

- (i) The paper shall consist of Four Units. Unit I will be text specific and Unit II shall deal with different aspects of communications and language learning skills. Unit III will be based on grammar and Unit IV will be dealing with Vocabulary and technical Terms.
- (ii) All questions are compulsory. However, internal choice will be given.

**UNIT-I**

*Short Stories: Toba Tek Singh* by Saadat Hasan Manto.

*A Horse and two Goats* by R.K. Narayan

*Poems* by Vikram Seth:

1. The Frog and The Nightingale
2. The Crocodile and the Monkey

*Poems* by Arun Kolatkar:

1. The Butterfly
2. An Old Woman

**UNIT-II**

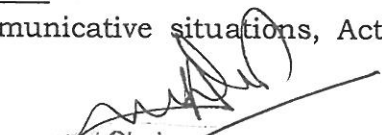
**Communication:** Process of communication, Forms of communication, Different aspects of communication, and significance of positive attitude in effective communication, Barriers in effective communication. Class activities like extempore, discussions and presentations on different subjects, which enhance the students' communicative abilities.

**UNIT - III**

**Grammar:** Parts of speech, Use of Tenses in communicative situations, Active and passive voice, Direct-indirect speech, idioms and phrases.

Paragraph writing,

Letter of all kinds

  
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**UNIT IV**

This unit will be based on writing exercises for the students based on selected visuals. Class activity will include the discussion, interpretation, descriptive analysis of the visuals of the prescribed text, in particular its artistic medium, language and the subject depicted. For the first semester, the first two part 'Water' and 'Shelter,' of the Graphic novel *Bhimayana* will be discussed.

**Testing pattern:**

The examination paper shall be divided into four sections.

**UNIT-I****(10 Marks)**

Question 1 is text-based and corresponds to unit I in the syllabus. It shall consist of *three* long questions (not exceeding 300-350 words). The questions shall have internal choice, be based upon the prescribed text.

**Note:** The question 1 should be so designed as to cover all the chapters prescribed, as well as the major issues and problems listed therein.

**UNIT-II****(8 Marks)**

This question shall test a student's understanding of various aspects of communication and It shall consist of four questions out of which a student will be expected to attempt any two. This question shall have internal choice, be based upon the prescribed part of communication:

Two short questions to be attempted (in not more than 100-120 words each) on different aspects of communication.

**UNIT -III****(12 Marks)**

Parts of Speech (4)

Paragraph writing (4)

Letter of all Kinds (4)

**UNIT-IV****(10 Marks)**

This unit will enable the students to build a critical eye for reading various meanings and interpretations into texts and visuals. They will learn about various forms of visual narrations and the questions from it will examine their ability to descriptively render the subject in words. This will help them better understand the details of visuals and they have to be talked about in respect of its design, creativity and form.

**Books Recommended:****Essential Reading:**

1. Kolatkar, Arun. *Jejuri*. New York Review Books, 2005.
2. Manto, Saadat Hasan. *Kingdom's End And Other Stories*. Verso, 1987.
3. Narayan, R.K. *A Horse and Two Goats and Other Stories*. Viking Press, 1970.
4. Vyam, Durgabai, Subhash Vyam, Srividya Natarajan, and S. Anand. *Bhimayana: Experiences of Untouchability*. New Delhi: Navayana Publishing, 2011.

**Further Reading:**

1. Anand, S. and Vivek Vellanki. "Bhimayana, Caste, Ambedkar, Art and Pedagogy". *Contemporary Education Dialogue*, vol. 12, no.2, 2015, pp. 271-277.
2. Anjali Kalkar, R.B.Suryawanshi, Amlanjyoti Sengupta. *Textbook of Business Communication*. Hyderabad: Orient Blackswan, 2010.
3. Ashley, A. *Commercial Correspondence*. Oxford University Press, 2013.
4. Eastwood John. *Oxford Practice Grammar*. Oxford Uni. Publication, 1992.
5. *Functions of English- Students Book-* Leo Jones – Cambridge, University Press, 1981.
6. Goulston, Mark. *Just Listen*. American Management Association, 2010.
7. Krishna, Mohan. *Developing Communication Skills*. Macmillan Indian Ltd, 2010.
8. Owen, Hargie. *The Handbook of Communication Skills*. Routledge Publishers, 1986.
9. Tuhovsky, Ian. *Communication Skills: A Practical Guide to Improving Social Intelligence, Presentation and public Speaking*, CreateSpace Independent Publishing Platform, 2015.
10. Raymond, Murphy. *Essential English Grammar*, Cambridge Uni. Press, 1990.

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**SKILL ENHANCEMENT COURSE**  
**SEMESTER-1**  
**FLT-141:CREATIVE TECHNIQUES AND EMBROIDERIES(PRACTICAL)**

**Course Credits:3**

**Course Objective:**

- To impart knowledge of various creative techniques that enhance the value of a fabric.
- To impart knowledge of stitches and techniques used in embroideries.
- To apply the knowledge learnt to develop value enhanced fabrics and garment.

**Course Outcome:**

- Students will be able to identify techniques that can enhance the value of fabrics.
- They will be able to hand create and replicate these techniques to develop samples.
- They will be able to skillfully incorporate this learning in the garments, made ups and home textiles they design and stitch.

**Practical: 6 Pds/Week**

**Time for Paper: 4 Hours**

**Maximum Marks: 75**

**Int. Asst. 15, Int. Exam: 60**

**UNIT-I**


**Learning the techniques of various kinds of yarn craft.**

- Macramé
- Braiding
- Crocheting
- Tatting

**UNIT-II**

**Learning Fancy Embroidery stitches-**

- Coral stitch
- Pistil stitch
- Stem stitch
- Whipped running stitch
- Fly stitch
- Fishbone stitch
- French knot
- Fern stitch
- Lazy daisy
- Long and short stitch
- Slip stitch chain stitch
- Satin stitch, stem stitch
- Herringbone stitch
- Murgi stitch
- Negi stitch
- Menthe stitch
- Gavanti stitch
- Tied chain stitch
- Looped stem stitch

  
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**UNIT-III****Creating decorative self-trims for value addition to Garments.**


- Tassels and Bows
- Pom Poms
- Fabric flowers
- Chinese knots
- Fringes
- Ruffles
- Smocking
- Faggoting
- Quilting
- Patch work
- Applique

**UNIT-IV**

**Assignment:** Use a combination of the above given surface ornamentation techniques and embroidery stitches to develop one lifestyle product.

**Books Recommended:****Essential Reading:**

1. Connie Amaden-Crawford, A Guide to Fashion Sewing, Fourth Edition, 1992, Fairchild Publications.
2. Dorothy Wood, The Practical Encyclopaedia of Sewing, 1999, Lorenz Books, Anness Publishing Ltd., New York.
3. Colette Wolff, The Art of Manipulating Fabric, 19196, Interweave.
4. Caroline Crabtree, Christine Shaw, Quilting, Patch work and applique- a world guide, 2007, Thames & Hudson, London.
5. Donna Kooler, Donna Kooler's encyclopedia of quilting, 2005, Leisure Arts, Arkansas.
6. Pam Dawson, Complete guide to embroidery, 1983, Marshall Cavendish, London.
7. Pauline Turner, Beginners guide to crochet, 2005, Search Pr., Kent.
8. Heidi Willsmore, Macrame: A comprehensive guide, 1979, Faber & Faber, Lond

  
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**VALUE ADDED COURSE**

**SEMESTER I**

**FLT-151: TECHNIQUES OF RESIST DYEING & PRINTING (PRACTICAL)**

**Course Credits:2**

**Course Objective:**

- To enable the students to appreciate and learn the art of batik dyeing, tie and dye and block printing.
- To enable students to develop saleable articles, of interest, using these techniques for value addition.

**Course Outcome:**

- The students will be skilled in undertaking projects batik dyeing, tie and dye and block printing.
- They will be able to develop marketable articles value added with batik dyeing, tie and dye and block printing.

**Practical: 4 Pds/Week**

**Time for Paper: 4 Hours**

**Maximum Marks: 50**

**Int. Asst. 10, Int. Exam: 40**

**Instruction to examiner:**

The examiner will test the skill of the students in selection of fabrics, motifs and stitches for embroidery and techniques of tie and dye.

**UNIT-I**

**Theoretical introduction to Resist Dyeing and Printing**

- Brief Introduction to Textiles with their Classification and properties; Fabric test (Burning test).
- Meaning and Types of Resist Printing.
- Primary, secondary and tertiary colours
- Familiarization with tools and equipment for Batik, Tie & Dye and Block Printing; Usage of tools and equipment with safety precautions.
- Preparation for Tie and Dye; Tie and Dye techniques; Tie and dye printing in single colour, two colours and multi colour.
- Preparation for Block Printing; Block Printing in single colour, two colours and multi colour

**UNIT-II**

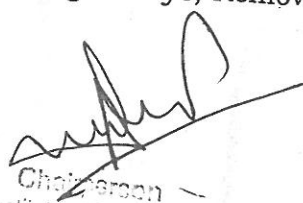
**Resist Dyeing: Batik Dyeing**

- Meaning and technique of Batik Dyeing; Batik Dyeing tradition in India.
- Preparing supplies for Batik Printing; exercising precautions, Preparing the fabric, creating a design for Batik Printing, making wax mixture and applying wax, Applying the dye, Removing the wax at the places of designs, Waiting and washing, Finishing up.
- Dyeing in single colour, two colours and multi colours.
- Recording all explorations in a file folder.
- Preparing a range of saleable articles.

**UNIT-III**

**Resist Dyeing: Tie & Dye**

- Meaning of Tie and Dye; Tie and dye tradition in India.

  
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- Preparing supplies, exercising precautions, preparing the fabric.
- Experimenting with different tying materials.
- Dyeing in single colour, two colours and multi colours.
- Making the dye mixture; Applying the dye, Waiting and washing, Finishing up.

#### UNIT-IV

##### **Block Printing**

- Knowing synthetic and natural fabrics, affinity of different dyes to fabrics, different dyes for Block Printing.
- Understanding Block Printing and types of Block Printing
- Knowing the tools for Block Printing; Care of Blocks.
- Making designs for Block Printing; Understanding placements.
- Preparing colour pastes and dyes for Block Printing.
- Treatment of fabric for printing; Preparing printing surface
- Single colour, two colour and multi colour printing.
- Treatment of fabric after printing.
- Safety precautions.

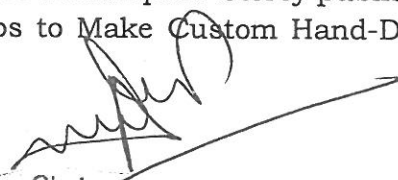
##### **Books Recommended:**

##### **Essential Reading:**

1. Simon-Alexander, S. (2013). Tie-Dye: Dye It, Wear It, Share It. Potter craft.
2. Vejar, K. (2015). The Modern Natural Dyer: A Comprehensive Guide to Dyeing Silk, Wool, Linen, and Cotton at Home. STC craft/ A Melanie Falick Book.
3. Wada, Y. I., Rice, M. K., & Barton, J. (2012). Shibori: The Inventive Art of Japanese Shaped Resist Dyeing. Kodansha America, Inc.
4. Recker, K. (2019). True Colors: World Masters of Natural Dyes and Pigments. Thrums Books.
5. Erickson, J. D. (1974). Block printing on textiles. Watson-Guptill Publications.
6. Edwards, E. (2016). Block printed textiles of India: imprints of culture. Niyogi Books.

##### **Further Reading:**

1. McLaughlin, C. (2014). A Garden to Dye For: How to Use Plants from the Garden to Create Natural Colors for Fabrics and Fibers. St. Lynn's Press.
2. Duerr, S. (2016). Natural Color: Vibrant Plant Dye Projects for Your Home and Wardrobe. Watson-Guptill publications Inc, U.S.
3. Callahan, G. (2010). Hand Dyeing Yarn and Fleece: Custom-Color Your Favorite Fibers with Dip-Dyeing, Hand-Painting, Tie-Dyeing, and Other Creative Techniques. Storey publishing LLC.
4. Lo, F. (2017). Dyeing to Spin & Knit: Techniques & Tips to Make Custom Hand-Dyed Yarns. Interweave.

  
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**MAJOR COURSES**  
**SEMESTER II**  
**FLT-201: VISUALIZING FASHION -II (PRACTICAL)**

**Course Credits:2**

**Course Objective:**

- To enable students to illustrate various silhouettes of a model figure.
- To illustrate fashion garment details.
- To understand inspirational mood boards.

**Course Outcome:**

- Students will be able to acquire knowledge and skills for the creative practice of fashion illustration and imaging.
- Students will develop amongst the student's proficiency in observation, visualisation and skill to communicate ideas in various medium.
- Students will be able to understand the application of Fashion illustration in harmony with n cultural and historical contexts and environments.
- Students will be able to develop an ability to generate creative ideas independently and collaboratively in traditional and Digital mediums.

**Practical: 4 Pds/Week**  
**Time for Paper: 4 Hours**

**Maximum Marks: 50**  
**Int. Asst. 10, Ext. Exam: 40**

**Instructions to the examiners:**

The examiner will set questions covering the whole syllabus

**UNIT-I**

- Appreciate the style of drawing, rendering and body proportion adopted by prominent fashion illustrator
- Copy the style technique and medium used by the specific fashion illustrator
- Translate the stylistic information from a personality into an illustrated style
- Understanding Types of fabric folds
- Draping the fashion form in color, fabric & texture.
- Figure Types ; Depicting various silhouettes on fashion figures.

**UNIT-II**

- To illustrate variations in skirts, dresses, trousers, coats, jackets etc.
- To illustrate the detailing of pleats, tucks, darts, yokes and godets
- Detailing of hemlines, edgings, pockets, fastenings, trimmings& accessories
- Rendering of various fabrics types – Chiffons, Crepes, denims, tweeds and corduroys ikats, tie & dyed fabrics, satins, spandex, laces and nets etc
- To depict the clothing designs through artistic drawings or sketches that take into account how people and objects interact within a physical space.

**Books Recommended:**

**Essential Readings:**

1. Tata Sharon Lee, "Inside Fashion Design", 1977, Francisco Canfield Press.
2. Ireland, Patrick John, "Fashion Design Drawing and Presentation", 1996, B.T. Batsford, London.

**Further Readings:**

3. Seaman, "Fashion Drawing - The Basic Principles", 1994, B.T. Batsford, London.
4. Seamn, Julian, "Professional Fashion Illustration", 1995, B.T. Batsford, London,
5. Drake And Nicholas, "Fashion Illustrations", 1994, Thames and Hudson, London,.
6. Ablng Bina, "Fashion Sketch Book" ,2006, Fairchild publication.

**SEMESTER II**  
**FLT-202: SEWING TECHNIQUES (PRACTICAL)**

**Course Credits:2**

**Course Objectives:**

To understand and create various structural design components in clothing.

**Course Outcome:**

- Students will be able to understand techniques of sewing used for producing small components of a garment/lifestyle product
- Students will be able to incorporate the techniques learnt in creating a lifestyle product.

**Maximum Marks:50**

**Practical: 4 Pds/Week**

**Time for Paper: 4 Hours**

**Int. Asst. 10, Ext. Exam: 40**

**Instruction to the examiners:**

The examiner will set questions covering the whole syllabus. Making samples of the following using Child bodice block slopers prepared in Pattern Development wherever needed:

**UNIT-I**

- **Necklines:** Construction and finishing of different types of necklines. (Facing and binding on different neck shapes).
- **Sleeves:** plain, puff, flared, bell, umbrella, cap, magyar, bishop, leg-o-mutton, raglan.
- **Collars:** peter pan, flat & roll, shawl, sailor, mandarin, wing.
- **Pockets:** patch, in-seam, patch with pleat, patch with flap pockets.
- **Yokes:** one piece, two pieces, with and without fullness.
- **Placket:** overlap: one side extended; both sides extended; rugby placket; concealed placket with buttons.
- **Application of zippers:** centered, lap, open ended, concealed, exposed

**UNIT-II**

- **Assignment-A** lifestyle product will be made by students using above given techniques.

**Books Recommended:**

**Essential Reading:**

1. Connie Amaden-Crawford, A Guide to Fashion Sewing, Fourth Edition, 1992, Fairchild Publications.
2. Dorothy Wood, The Practical Encyclopaedia of Sewing, 1999, Lorenz Books, Anness Publishing Ltd., New York.
3. Smith, Alison. Dressmaking: The Complete Step by Step Guide to Making Your Own Clothes. Penguin, 2012.
4. Fischer, Anette. Sewing for Fashion Designers. Laurence King Publishing, 2015.
5. Wendy Gardiner, The Encyclopaedia of Sewing Techniques a Step-by-Step Visual Directory within Inspirational Gallery of Finished Pieces, 2003, Piers Spence Search Press Limited Kent .
6. Complete Book of Sewing- A Practical step-by-step Guide to Sewing Techniques, 1996, Dorling Kindersley Publishing Inc., London.

**Further Reading:**

7. McCall's, "Sewing in colour-Home dressmaking, Tailoring, Mending, soft furnishings, The Hamlyn Publishing group Ltd. (1963).
8. Dantyagi.S, "Fundamentals of Textiles and their Care", Orient Longman Ltd, New Delhi.
9. "The Complete Book of sewing- A practical step by step guide to sewing techniques" Dorling Kindersley publication, (1996).
10. Verma G, "Cutting and Tailoring Theory", Asian Publishers, Delhi, 1999.
11. Thomas Anna Jacob, 'The Art of Sewing', UBS Publishers Distributors Ltd., New Delhi, 1994.



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**SEMESTER II**  
**FLT-203: PATTERN DEVELOPMENT (PRACTICAL)**

**Course Credits:2**

**Course Objective:**

- To understand the purpose of pattern development.
- To apply the knowledge of pattern development for creating structural designs.

**Course Outcome:**

- The students will be able to appreciate the purpose of pattern development.
- They will be able to skilfully use the knowledge of pattern development for creating structural designs.

**Practical: 4 Pds/Week**

**Time for Paper: 4 Hours**

**Maximum Marks: 50**

**Int. Asst. 10, Ext. Exam: 40**

**Instructions to the examiners:**

- The examiner will set questions only from UNIT-II
- No question will be set from UNIT-I of the syllabus in the final examination.
- Students will prepare assignments and presentations out of UNIT-I

**UNIT-I**

Assignments and Presentation of the following:

- Introduction to Pattern Making: Review of different methods of developing a pattern; advantages and disadvantages of all the methods.
- Purpose, meaning, tools and language of drafting and pattern making.
- Anthropometric measurements; landmarks; taking body measurements. A study of various sizes and measurements, measurement charts.
- Selection of right size pattern; fitting problems; principles of a good fit; Alterations of paper patterns
- Purpose of Darts 36

**UNIT-II**

- Creation of a bodice block and a sleeve block for a child.
- Adaptation of sleeve block to – set-in-sleeves – plain, puff, cap, bell, umbrella, flared and leg-o-mutton, bishop extended bodice sleeve - Magyar, part bodice in sleeve - raglan.
- Basic skirt block & its adaptation to, a-line skirt, added flare skirt, skirt with yoke, 3 tiered skirts, wrap skirt, circular skirtfull and half.
- Adaptation of collars – baby, peter pan, raised peter pan, cape, shawl, sailor, mandarin, wing, flat and roll.
- Plackets: - Over Lap: - One side extended, both sides extended; Double breasted; Rugby placket; Concealed placket finished with buttons and zipper

**Books Recommended:**

**Essential Reading:**

1. Helen Joseph Armstrong ,Pattern Making for Fashion Design, 2000., Dorling Kindersley (India ) Pvt. Ltd. India,
2. Sandra Betzina ,Fast Fit – Easy Pattern Alterations for Every Figure, 2003 Taunton Pr.

**Further Reading:**

3. Kathleen Maggio ,Altered Clothing .
4. Pati Palmer and Susan Pletsch , Easy, Easier, Easiest Tailoring ,; 2000, published by Palmer/Pletsch Inc.

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**MINOR COURSE**

Every student will study Fabric Technology.

In addition to this, student can choose any one subject to have Minor in a specific subject/discipline

Name of the subject Undertaken (any one)	Name of the Minor
FLT-212: Fashion Marketing	Textiles and Merchandising
FLT-213: History of Indian Costumes	Textiles and Costumes
FLT-214: Introduction to Apparel Industry	Textiles and Apparel Manufacturing Technology

**SEMESTER II****FLT-211: FABRIC TECHNOLOGY - II (PRACTICAL)**

**Course Credits: 2**

**Course Objective:**

- To identify various fibres and to test yarns for their properties.
- To help students understand various woven fabric structures.

**Course Outcome:**

Students will be able to

1. Identify the various types of fabrics and their properties.
2. Understand various textile testing equipments for twist, ply, count, strength, abrasion and crease. This learning would help students to test different fabrics for their relative toughness and strength.

**Maximum Marks: 50**

**Practical: 4 Pds/Week**

**Time for Paper: 4 Hours**

**Int. Asst. 10, Ext. Exam: 40**

**Instructions to the examiners:**

- The examiner will set questions only from UNIT-II
- No question will be set from UNIT-I of the syllabus in the final examination.
- Students will prepare assignments and presentations out of UNIT-I
- There will be a Viva for 5 marks.

**UNIT-I**

No questions will be set from this section. Students will prepare files for this section.

- Theory of direct and indirect method of yarn numbering system.
- Methods of Fabric construction (woven, non-woven- felting, bonding, knitting, weaving, lacing, braiding, knotting.)

**UNIT-II**

- Identification of fibers: Visual Inspection, Microscopic test, Burning Test, Solubility test.
- To determine the thread count, balance, & yarn strength (cotton, casement, linen, wool, silk, polyester, acrylic, rayon)
- Yarn testing for twist, ply, and count.
- Understanding of textiles testing equipment with relevance to yarn twist, yarn strength, abrasion resistance, crease recovery.

**Assignments for the students:**

Prepare a catalog of fabric samples under following heads:

- Fibre composition- names by which these are available.
- Yarn structure – textile variation.
- Fabric structure – different types of construction and their variations.

**NOTE:** The teacher may develop master samples to demonstrate various processes. The students may be asked to prepare swatch files. The students should be taken for a visit to spinning mills to show the various processes or relevant video films may be screened.

**Books Recommended:**

**Essential Reading:**

1. Saville, P. B.(1999).*Physical Testing of Textiles*. Woodhead Publishing Limited.
2. Kadolph, J. S.(2008)*Quality Assurance for Textiles and Apparel*. Fairchild publications.

**Further Reading:**

1. Murphy, S. W.(2003).*Fabric Science*. Abhishek Publications.
2. Bhatnagar P.(2002), *Elementary Textiles*. Abhishek Publications.
3. Gioello, A. D. (2002). *Understanding Fabrics from Fiber to Finished Cloth*. Fairchild Publications.
4. Kaplan S. N.(2002).*A practical guide to Fiber Science*. Abhishek Publications.

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**SEMESTER II**  
**FLT-212: FASHION MARKETING (THEORY)**

**Course Credits: 4**

**Course Objective:**

- To offer to the students a comprehensive and practical introduction to Fashion marketing concept.
- To enable students to know the importance of marketing and principles of marketing in the present day of fashion world.

**Course Outcome:**

- Students will be able to appreciate the use of various elements of Fashion Product Marketing and Visual Merchandising and use these concepts in product development.
- Students learning Fashion marketing would be able to easily analyse the core needs of consumers and this can help in starting their own business ventures.

**Theory: 4 Pds/Week**

**Time for Paper: 4 Hours**

**Maximum Marks: 100**

**Int. Asst. 20, Ext. Exam: 80**

**Instruction to the Examiners:**

- Question paper will have four sections.
- Examiner will set a total of nine questions comprising two questions from each unit, and one compulsory question of short answer type covering the whole syllabus.
- Student will attempt one question from each unit and the compulsory question.
- All questions will carry equal marks.

**UNIT I**

Definition of Fashion Marketing, Exchange Process in Marketing, Core Concepts, Functions and Importance of Marketing, Ethical issues in Fashion Marketing, Overview of Fashion Marketing process.

**UNIT II**

The Process of Market Segmentation, Bases for Segmenting Consumer Markets, Consumer decision making process, Targeting, Market Positioning, Bases for Positioning the Product  
Fashion Marketing Research and analysis

**UNIT III**

The Fashion Market size and Structure, Macro-marketing environment and Micro-marketing environment.

Fashion Marketing mix, New Product Development, Product Life Cycle Management, Consumer Demographics and their lifestyles.

**UNIT IV**

Types of Promotion Techniques, Advertising by Retailer, Store environment, range ordering as per sizes/colours.

Publicity, Salesmanship, Sales promotion, Physical distribution, Services Marketing, Visual Merchandising, Elements and Types of displays.

**Books Recommended:**

**Essential Reading:**

- 1) Easey, M. (2009). *Fashion Marketing* (3<sup>rd</sup> ed.). Wiley- Blackwell Publications.
- 2) Kotler, P., & Armstrong, G. (2020). *Principles of Marketing* (18<sup>th</sup> ed.). Pearson Publications.
- 3) Swanson, Kristen. K., & Everett, Judith. C. (2016). *Promotion in the Merchandise Environment*. Fairchild Publications.
- 4) Bawa, Ramandeep, Sinha, A.K., & Kant, R. (2022). *Visual Merchandising and Consumer Behaviour in Shopping Malls*. Northern Book Centre Publications.
- 5) Amarchand, D. & B. Varadarajan. (1981). *An Introduction to Marketing Management*. Vikas Publishing House Private Ltd.

**Further Reading:**

1. Davar, R.S. (1982). *Marketing Management*. Bombay: Progressive Corporation Private Limited.
2. Sherlaker S.A. (1982). *Marketing Management*. Delhi: Himalaya Publishing House
3. Kadolph, J. S.(2008) *Quality Assurance for Textiles and Apparel*. Fairchild publications.

**UNIT-IV**

## Traditional costumes of different regions in India

- Jammu & Kashmir
- Punjab
- Haryana
- Gujarat
- Rajasthan
- Uttar Pradesh
- Madhya Pradesh
- West Bengal
- Assam
- Maharashtra
- Tamil Nadu
- Andhra Pradesh
- Kerala
- Karnataka

**Books Recommended:****Essential Reading:**

1. Bhandari, V. (2016). Costumes and Textiles of Royal India. Niyogi Books.
2. Jain-Neubauer, J. (2000). Feet and Footwear in Indian Culture. Mapin Publishing Pvt Ltd.
3. Katiyar, K. (2017). Indian Costume. The Asiatic Society.
4. Khanna, R. (2018). The Sari: Styles, Patterns, History, Techniques. Thames & Hudson.
5. Mukherjee, T. (2016). Costume, Textiles and Jewellery of India: Traditions in Rajasthan. Niyogi Books.
6. Sen, D. (2014). Textiles and Dress of Gujarat. Mapin Publishing Pvt Ltd.
7. Shah, U. (2019). Mughal Brocades: The Romance of India. Niyogi Books.

**Further Reading:**

1. Prakash, O. (2015). Costumes and Ornaments of Chamba. Aryan Books International.
2. Shah, U., & Varma, S. (2019). The Printed Textiles of Gujarat: 1880-1940. Niyogi Books.
3. Singh, K. (2019). Traditional Indian Textiles. Roli Books



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**SEMESTER-II**  
**INTRODUCTION TO APPAREL INDUSTRY (THEORY)**

**Course credits: 4**

**Course Objective:**

- To provide a broad overview of structure and practices of the Apparel Industry.
- To acquaint students with the various machines and equipment used in Apparel Industry
- To expose the students to the latest practices and technological world of garment production and finishing.

**Course outcome:**

- Students will be able to understand the structure and departments of apparel industry.
- Students will be able to know the processes, workflow, machinery and equipment used in an apparel industry.
- Students will be able to decide what kind of basic equipment required for setting up an apparel unit.

**Theory: 4 Pds/Week**

**Time for Paper: 4 Hours**

**Maximum Marks: 100**

**Int. Asst. 20, Ext. Exam: 80**

**Instruction to the Examiners:**

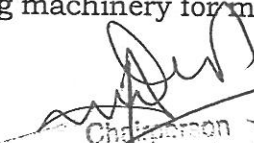
- Question paper will have four sections.
- Examiner will set a total of nine questions, comprising two questions from each unit, and one compulsory question of short answer type covering the whole syllabus.
- Students will attempt one question from each unit and the compulsory question.
- All questions will carry equal marks.

**UNIT I**

- History of Apparel Industry: Growth/evolution of apparel Industry. Development of Industry through Industrial revolution, World War-I and World War II. Growth of apparel industry over time.
- Major centres of apparel manufacturing Industry: India and Globally
- Study of various departments: Merchandising, Sampling, Fabric Sourcing, Purchasing, Fabric and accessory store, Production planning and control, Industrial engineering, CAD, Embroidery, Quality Control, Cutting, Production, Washing and Finishing, Packaging

**UNIT-II**

- Understanding Specification sheets
- Pattern, Grading and Marker making- Process and equipment used
- Spreading and Cutting- Process and Machinery used.
- Sewing – History and machines, types and technology of sewing machinery for manufacturing

  
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**UNIT III**

- Types of Sewing Machine Bed
- Sewing needle- parts, function and types
- Stitching mechanism and types
- Feed mechanism and types
- Lubrication systems in sewing machinery
- Stitch- definition, classification and application
- Sewing threads – types
- Work aids and attachments

**UNIT IV**

- Fusing – Importance and Machinery
- Finishes applied on garments
- Finishing equipment
- Pressing- importance, equipment
- Labelling- Types, process and equipment
- Garment Finishing and Inspection
- Packaging – Material and types

**Books Recommended****Essential Readings**

1. Hayes, S., McLoughlin, J., & Fairclough, D. (2012). *Cooklin's Garment Technology for Fashion Designers*. A John Wiley and Sons, Ltd.
2. Hudson, P.B. (1989). *Guide to Apparel Manufacturing*. MediApparel.
3. Karthik, T., Ganesan, P., & Gopalakrishnan, D. (2017). *Apparel Manufacturing Technology*. CRC Press Taylor & Francis Group.
4. Nayak, R. & Padhye, R (Eds.). (2015). *Garment Manufacturing Technology*. Woodhead Publishing.
5. Solinger, J. (1981). *Apparel Manufacturing Handbook*. Bobbin Bienheim Media Corp.
6. T. Cassidy & P. Goswami (Eds.).(2018). *Textile and Clothing Design Technology*. CRC Press Taylor & Francis Group
7. Tyler, D.J. (2008). *Carr and Latham's Technology of Clothing Manufacture*. Blackwell Publishing Ltd.

**Further Readings**

1. Chuter, A.J. (1995). *Introduction to Clothing Production Management*. Blackwell Scientific Publications.
2. Clayton, M. (2008). *Ultimate Sewing Bible – A Complete Reference with Step-by-Step Techniques*. Collins & Brown.
3. Glock, R.E., & Kunz, G.I. (2005). *Apparel Manufacturing: Sewn Product Analysis*. Pearson, Education India
4. Hayes, S., McLoughlin, J., & Fairclough, D. (2012). *Cooklin's Garment Technology for Fashion Designers*. A John Wiley and Sons, Ltd.
5. Hudson, P.B. (1989). *Guide to Apparel Manufacturing*. MediApparel.
6. Karthik, T., Ganesan, P., & Gopalakrishnan, D. (2017). *Apparel Manufacturing Technology*. CRC Press Taylor & Francis Group.
7. Nayak, R. & Padhye, R (Eds.). (2015). *Garment Manufacturing Technology*. Woodhead Publishing.
8. Shaeffer, C. 2014. *Sewing for the Apparel Industry*. Pearson Education Ltd.



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MULTI/INTER-DISCIPLINARY COURSES  
SEMESTER II  
FLT-221: INOVATIVE DESIGN THINKING -II (PRACTICAL)

**Course Credits: 2**

**Course Objective:**

- To understand design concepts and create balanced abstract art forms.
- To understand illustration techniques.

**Course Outcome:**

- Students will be able to acquire knowledge and skills for the creative practice of design creation.
- Students will develop aesthetic sense in observation, visualisation and skill to communicate ideas in various medium.
- Students will be able to develop an ability to generate creative ideas independently and collaboratively in traditional and Digital mediums.

**Practical: 4 Pds/Week**

**Time for Paper: 4 Hours**

**Maximum Marks:50**

**Int. Asst. 10, Ext. Exam: 40**

**Instructions to the examiners:**

- The examiner will set questions covering the whole syllabus.

**UNIT-I**

- Understanding Perspective drawing- 1point, 2 point and 3 point.
- Exploration of ideas through doodling
- Developing of natural, stylized, geometrical and abstract motifs taking inspiration from traditional and folk art, contemporary and futuristic art.
- Creating 2 dimensional and 3 dimensional objects; sketching and illustration with color and rendering.

**UNIT-II**

- Formation of Textures - spontaneous, decorative, mechanical, using various methods of drawing, painting, printing, bleaching, rubbing, spraying, staining, dyeing, burning etc.
- Learning the basic art of calligraphy using calligraphic tools; Usage of alphabets to design a pattern or a composition.
- Usage of Natural, geometric, and abstract forms in creating signs and symbols.
- Making a collage by playing with forms and color

**Books Recommended:**

**Essential Reading:**

1. Herber Read, The meaning of Art, (1951), Feber and Feber Limited.
2. Maith and Graves, The art of Colour and Design. (1952) McGraw-Hill Book Company Inc.
3. Maith&Graves, Colour Fundamentals, (1952), McGraw-Hill Book Co., Inc.
4. Louis Walehonok, The Art of Three Dimensional Design, (1959), Harper and Bros

**Further Reading:**

5. Chesking (Macmilla), Colours Guide for Marketing, (1954), The Macmillion Company, New York.
6. Goldstein, Herriet ,Art in Everyday Life. 1964, Studio Vista Limited.
7. Bride M Whelan, "Colour Harmony", 1992, Rockfort Publisher.
8. Stockton and James, "Designers Guide to Colour", 1984, Chronicle Books, San Francisco.
9. Chijiwa, Hideaki, "Colour Harmony", (10<sup>th</sup> ed.),1992, Rockfort Publishers, USA

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**SEMESTER II**

**FLT- 222: TREND FORECASTING - I (PROJECT BASED)**

**Course Credits: 1**

**Course Objective:**

- To enable students to develop understanding of fashion trends, trend cycles and theoretical concepts.
- To enable students to understand, analyze and evaluate the various methods of forecasting in fashion.
- To develop understanding of past, consumer habits, cultural influences and global influences affecting trend prediction.

**Course Outcome:**

- Students will be able to do forecast for fashion trends.
- Students will gain theoretical knowledge of various forecasting methods.
- Students will have understanding of factors affecting trend prediction.

**Practical: 1 Pd/Week**

**Time for Paper: 3 Hours**

**Maximum Marks: 25**

**Int. Asst. 5, Int. Exam: 20**

**Instructions to the examiners:**

- UNIT-I is to provide basic knowledge to the learner. No questions will be set from UNIT-I. • The examination will be Project based (details mentioned in UNIT-II)

**UNIT-I**

- Introduction to fashion trends (Macro vs micro trends), trend cycles and theoretical concepts related to forecasting trends.
- Understanding Trend cycles, fast fashion and slow fashion and gain insights into the role of Influencers/ bloggers in shaping emerging trends.
- Understanding different types and methods of Forecasting - intuitive and predictive, Methods and techniques of both.
- To discover the impact of high culture, popular culture (Music, arts, youth culture and social media), and subcultures on Fashion trends.
- Trend reading: Analysis and breakdown, Analyse global influences- sustainable choices

**UNIT-II**


- Develop an understanding of the following concepts:
  - o Colour forecast
  - o Event reporting like trade events, exhibitions; knowing the market driven influences
  - o Sourcing trends; mind mapping and mood-board
  - o Knowing the target audience; learning how consumer habits and lifestyles influence trends; gaining an understanding of how brands conduct trend research for its target customer.
  - o Understanding the forecasting calendar; knowing how to make a research plan, create and use the forecasting calendar.
- Project: Capture analyze and forecast a trend. Develop the findings into a Trend Story, define the trend concept, extract key colours, prints, textures, fabric samples, design detail ideas and silhouettes. The project will be a compilation of all research work and forecasting outcomes in the form of trend readings and a trend forecast pitch.

**Books Recommended:**

Fashion forecasting by Kathryn Mickelvey and Janine Munslow Website of WGSN  
Miglani, N, Sharma, S, & Brar, P. (2018). A handbook of Fashion Management

**Essential Reading:**

WGSN website

  
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**ABILITY ENHANCEMENT COURSE**

**SEMESTER-II**

**FLT-231: ENGLISH-II (THEORY)**

**Course Credits: 2**

**Course Objective:**

- To enable students to understand the spoken and written English language of varied complexity in most subjects of their chosen field; Fashion.
- To enable students to comprehend the role of literary and linguistic skills in their overall development.
- To enable students to gain accuracy in use of grammatically correct communicative English in general and in the language of their chosen field.

**Course Outcome:**

- The students will become independent users of English language and will be able to understand the spoken and written English language of varied complexity, both spoken and written, in context of the subjects they study in their chosen technical field; Fashion.
- The students will be able to comprehend the role of literary and linguistic skills necessary for their overall development.
- The students will gain accuracy in the use of grammatically correct communicative English and will be able to use the language in the presentation of their creative ideas.

**Note:**

- (i) There will be one paper of 40 marks.
- (ii) The paper shall consist of Four Units. Unit I will be text specific and Unit II shall deal with different aspects of communications and language learning skills. Unit III will be based on grammar and Unit IV will be dealing with Visual literature.
- (iii) All questions are compulsory. However, internal choice will be given.

**Theory: 2 Pds/Week**

**Time for Paper: 3 Hours**

**Maximum Marks: 50**

**Int. Asst. 10, Int. Exam: 40**

**UNIT - I**

*Novel: Animal Farm by George Orwell.*

**UNIT-II**

Listening Skill: The Listening Process, Types of Listening, and Essentials for Good listening, importance and art of developing listening habits. Activities and Tasks: Listening comprehension, Quizzes, Case Studies

**UNIT - III**

Reading Comprehension

Making a CV, agenda, Notice, Minutes.

Essay Writing on topics of Fashion and technology

**UNIT IV**

This unit will be based on writing exercises for the students based on selected visuals. Class activity will include the discussion, interpretation, descriptive analysis of the visuals of the prescribed text, in particular its artistic medium, language and the subject depicted. For the second semester, the next two parts 'Travel' and 'The Art of Bhimayana,' of the Graphic novel *Bhimayana* will be discussed.

**Testing pattern:**

The examination paper shall be divided into four sections. The distribution of questions and marks in Unit I shall be as follows:

**UNIT-I****(10 Marks)**

Question 1 is text-based and corresponds to unit I in the syllabus. It shall consist of *three* long questions (not exceeding 300-350 words). The questions shall have internal choice, be based upon the prescribed text.

**Note:** The question 1 should be so designed as to cover all the chapters prescribed, as well as the major issues and problems listed therein.

**UNIT-II****(8 Marks)**

This question shall test a student's understanding of various aspects of communication and Listening Skills. It shall consist of four questions out of which a student will be expected to attempt any two. This question shall have internal choice, be based upon the prescribed part of communication. Two short questions to be attempted (in not more than 100-120 words each) on different aspects of communication.

**UNIT -III****(12 Marks)**

Essay Writing (4)

Reading Comprehension (4)

Notice/Agenda/Minutes/CV (4)

**UNIT-IV****(10 Marks)**

This unit will enable the students to build a critical eye for reading various meanings and interpretations into texts and visuals. They will learn about various forms of visual narrations and the questions from it will examine their ability to descriptively render the subject in words. This will help them better understand the details of visuals and they have to be talked about in respect of its design, creativity and form.

**Books Recommended:****Essential Reading:**

1. Chute, Hillary L. "Comics as Literature? Reading Graphic Narrative." *PMLA*, vol. 123, no. 2, Modern Language Association, 2008, pp. 452-65, <http://www.jstor.org/stable/25501865>.
2. Orwell, George. *Animal Farm*. Harper Collins, 2009.
3. Vyam, Durgabai, Subhash Vyam, Srividya Natarajan, and S. Anand. *Bhimayana: Experiences of Untouchability*. New Delhi: Navayana Publishing, 2011.

**Further Reading:**

1. Cutts, Martin. *The Plain English Guide*, Oxford University Press, 1995.
2. Eastwood John, *Oxford Practice Grammar*. Oxford Uni. Publication, 1992.
3. Gallo, Carmine. *Talk like TED: The 9 Public Speaking Secrets of the World's Top Minds*. Pan Macmillan, 2014.
4. Gupta, Sagarmal and Alpana Gupta *Grammar and Composition for Communication*. Orient Black Swan, 2009.
5. Murphy Raymond, *Essential English Grammar*, Cambridge Uni. Press, 1990.
6. R. Quirk, S. Greenbaum, G. Leech and J. Svartik. *A Comprehensive Grammar of the English Language*. Longman, London, 1985.
7. R.O.Neill. *English in Situations*. Oxford University Press, 1970.
8. Sullivan, Jay. *Simply Said: Communicating at Work and Beyond*. John Wiley and Sons, 2016.

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**SKILL ENHANCEMENT COURSE**  
**SEMESTER II**  
**FLT-241: BASICS OF DRAPING (PRACTICAL)**

**Course Credits: 3**

**Course Objective:**

- To enable the students to understand the importance of Draping in the Fashion Industry
- To enable the students to learn the basic techniques of Draping.
- To enable the students to understand how to incorporate simple design lines in fashion garments through draping.

**Course Outcome:**

- Students will be able to appreciate the importance of Draping in the Fashion Industry
- Students will be able to use the basic techniques of Draping.
- Students will be able to incorporate simple design lines in fashion garments through draping.

**Practical: 6 Pds/Week**

**Time for Paper: 4 Hours**

**Maximum Marks: 75**

**Int. Asst. 15, Ext. Exam: 60**

**Instruction to the examiners:**

- No Question will be set from UNIT-I of the syllabus.
- Questions will be set from UNIT-II of the syllabus.
- The examiner will set questions to assess students' skill in basic draping.

**UNIT-I**

Students should submit assignments and present the following:

- Importance of draping; its advantages and disadvantages.
- Knowing the dress-form; its sizes of and body landmarks.
- Preparation of Dress forms for Draping; locating and marking body landmarks, taking measurements on dress-form.
- Knowing to adjust the dress-form to required size and measurements.
- Tools of draping for accuracy and finesse of fit.
- Importance of a good fit and resolving fitting problems.

**UNIT-II**

- Prepare a toile to be draped on the dress-form; place the required markings on the toile.
- Drape the bodice front and back to develop a basic bodice block for women; true the toile pattern and add markings. Baste and test fit on dress-form. Transfer the toile pattern onto stiff paper to develop an industrial pattern.
- Drape a basic skirt front and back to develop a skirt block for women; true the toile pattern and add markings. Baste and test fit on dress-form. Transfer the toile pattern to develop an industrial pattern.
- Develop design illustrations of various shapes of yokes with gathers in bodice blocks and skirt blocks; drape these designs on dress-form; Baste and test fit on dress-form; develop toile facings and belts; stitch the toile to test fit the garment. Transfer the toile pattern onto stiff paper to develop a paper pattern of the complete garment.
- Drape an A-line one-piece dress; Baste and test fit on dress-form. Transfer the toile pattern onto stiff paper to develop a paper pattern of the complete garment.
- Drape an A-line skirt; pleated skirt; Baste and test fit on dress-form. Transfer the toile pattern onto stiff paper to develop a paper pattern of the complete garment.

**Books Recommended:**

**Essential Reading:**

- Crawford, C.A. (2005). *The Art of Fashion Draping (3rd Edition)*. Fairchild Books and Visuals.
- Armstrong, H.J. (2008). *Draping for apparel design (2nd ed.)*. Fairchild Books & Visuals.
- Jaffe, H., & Relis, N. (2012). *Draping for fashion design (5th ed.)*. Pearson Education (US).

**Further Reading:**

- Jaffe, H., & Relis, N. (1994). *Draping for fashion design (2nd ed.)*. Pearson Education (US).
- Attardi, D. (2021). *Fashion draping techniques (Vol.1) - A step by step course*. Hoaki.

**VALUE ADDED COURSE**  
**FLT-251: DESIGN CONCEPT TO PRODUCT DEVELOPMENT (PRACTICAL)**

**Course Credits: 2**

**Course Objective:**

- Students will learn the design process for product development from design ideation, conception & creation to pattern making with style modification to a sample garment.
- They will have knowledge of the concept of sample garment, pre-production and product line for mass market and from merchandising perspective.

**Course Outcome:**

- Students will be able to create design illustrations, create patterns with style modifications and make a garment or garments.
- They will understand the concept of sample for pre-production and product line for mass market and merchandising perspective.

**Practical: 4 Pds./Week**  
**Time for Paper: 4 Hours**

**Maximum Marks: 50**

**Int. Asst. 10, Int. Exam: 40**

**Design Development**

**UNIT-I**

- Ideation of a product line and undertake Trend Research for Design conceptualisation.
- Create an Inspiration Board based on the idea.
- Create a Client Profile Sheet.
- Finalise a Theme and develop Line sheets; Finalize a Design; Creation of illustrations, & specifications of the ensembles with reference to measurements. Renditions of the illustrations with Colour and Texture.
- Sourcing & selection of fabric, materials and trims.
- Artwork & Creations may be manually rendered or digitally, using software Create a Client Profile Sheet.

**Pattern Development**

**UNIT-II**

- Develop Basic Bodice, Sleeve, Trouser and Skirt Blocks (from Measurements of Dress form/chosen client) through flat pattern or draping method.
- Develop slopers for all basic blocks and a contour guide pattern.
- Add style lines to slopers to develop required Patterns as per the designs.
- Cut patterns in muslin and sew for test fit.

**Product Development**

**UNIT-III**

- Make a Pre-production sample garment.
- Test fit, modify and make a final garment for production run.
- Photoshoot
- Product write-up

**Books Recommended**

**Essential Reading:**

1. Ireland, Patrick John, "Fashion Design Drawing and Presentation", 1996, B.T. Batsford, London.
2. Seamn, Julian, "Professional Fashion Illustration", 1995, B.T. Batsford, London.
3. Drake and Nicholas, "Fashion Illustrations", 1994, Thames and Hudson, London.
4. Bray N., "Dress Pattern Designing", 2003(5th edition) Wiley Blackwell.
5. Pattern Making for Fashion Design by Helen Joseph Armstrong, 2005, Prentice Hall.
6. McCall's Sewing in Colour, 1971, Butterick Publishing Co.
7. Singer Sewing Book, 1943, Mary Brooks Picken, Kessinger Publishing.

8. Measure, Cut and Sew; Holt Rinehart and Winson. 1922, McMillian Publishing Company.

**Further Reading:**

- 9. Ireland, Patrick John, Fashion Design Drawing and Presentation 1996", B.T. Batsford, London.
- 10. Elisabetta Drudi, T.Paci, "Figure Drawing for Fashion", 2002, The Pepin Press.
- 11. Bina Abling Fashion Illustrations, 2008, Fairchild Publication,
- 12. Bina Abling, Fashion rendering with Color, 2000, Fairchild Publication
- 13. Thames & Hudson, Vogue Sketch Catalogue, 1911, Si New House.
- 14. Basic Pattern Skills for Fashion Design by Bernard Zamkoff, 1997, Fairchild Publication.
- 15. Ernestine Koff, Design Apparel through Flat Pattern, 2006, Cole Publishing Co.
- 16. Martin Shoben, Pattern Cutting & Making Up, 1987, Butter Worth, Heimeneman.
- 17. Hilde Jaffe, Draping for Fashion Design, 2007, Claudia Barbara.

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**Scheme of Studies (Home Science), and B.A. (Honours with Research) 1 in Humanities and Social Sciences with Home Science under Three/Four Years Under Graduate (Single Major) Programme for the Punjab University Campus, Its Constituent and Affiliated Colleges**

1	2	3	4	5	6	7	8	9	10	11	12
Major or Specific Core Course (DSC)	Minor Discipline Courses (MDC)	Ability Enhancement Compulsory Course (AEC)	Value Added Courses (VAC)	Skill Enhancement Courses (SEC)	Multidisciplinary Courses (MDSC)	Summer Internship /Community Service/Outreach/Internship/field based project(s) (CEIP)	Research Methodology/ Data Analytics (RMDA)	Research Project/Dissertation (PRODIS)	Total Credits in Each Semester	Certificate Awarded with Cumulative Credits	
4 credits paper A. Introduction to Home Science-I (1) Family resource management and interior decoration (1+1) (2) Food and Nutrition (1+1)	4 credits paper A. Introduction to Home Science-I (1) Family resource management and interior decoration (1+1) (2) Food and Nutrition (1+1)	3 credits paper AEC-1	2 credits paper	3 credits paper Nutrition and Fitness I 3(2+1) or Fashion ornamentation I 3(1+2) or Early Childhood Care (Nanny) I 3(2+1) or Waste to wealth I 3(1+2) or Food safety and preservation I 3(1+2) Or Bakery science 3(1+2) Or Effective Dressing Skills I 3(1+2) or Children with special needs 3(1+2) Or Personal grooming I 3(1+2)	3 credits paper Fundamentals of Nutrition and Food Science 3(2+1) Or Basics of Fashion Designing 3(2+1)	2 credits paper	2 credits paper	2 credits paper	4 credits paper	22	Under Graduate Certificate with Cumulative Credits 22 + 22 = 44

ANNEXURE - 1  
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Appendix to  
Stem No. LXIV

\* 1 MDC+ 2  
\* 1 VAC +1  
\* 1 MDSC =  
Credits)

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Prof. M. J. Khan  
10/11/2020  
S. J. Khan

II (1 DSC+ 1 MDC+ 2 AEC+ 1 SEC+ 1 MDSC+ 1 CEOIF =	B. Introduction To Home Science-II (iii) Human Development and Family Dynamics (1+1) (iv) Clothing and Textiles (1+1)	AEC-3	Nutrition and Fitness II 3(2+1) or Fashion ornamentation II 3(1+2) or Early Childhood Care (Nanny) II 3(2+1) or Waste to wealth II 3(1+2) Or Food safety and preservation II 3(1+2) Or Bakery science II 3(1+2) Or Effective Dressing Skills II 3(2+1) or Children with special needs II 3(1,2) Or Personal grooming II 3(1,2)	Fundamentals of Nutrition and Food Science 1(2+1) or Basics of Fashion Designing 3(2+1)	CEOIF-1 (Summer Internship In relevant fields)	22
22 Credits	8	AEC-4	6	6	2	8
Total	8	8	6	6	2	22

Note: i) \*\* These papers shall be offered to the students opting for 'Four Year Undergraduate Honours Programme' in lieu of 'Four Year Undergraduate Honours Programme with Research'; ii) The Colleges can offer MDC, MDSC, SEC, VAC, AE, and CEOIF courses as per the infrastructure/ specializations available at respective campuses; iii) A Department/College may design its own curriculum for each of aforementioned category of courses and get it approved from various academic bodies of Panjab University, Chandigarh; iv) A 'Four Year Undergraduate Honours Programme with Research' shall be offered either by Panjab University campus or through any of its approved research centre (approved as per P.U. Calendar Vol. III, 2019 at page 399 (e)).

*Ball Jaha*  
*Dr. J. S. Singh*  
*27/11/19*



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## Home Science (Major/ Minor) Semester 1

### INTRODUCTION TO FAMILY RESOURCE MANAGEMENT AND FOODS AND NUTRITION

#### THEORY

Credit Hours: 2/week

Maximum Marks: 50

Duration of class : 2 hrs/week

Theory Paper: 40

Duration of exams : 3 hrs

Internal Assessment: 10

#### Instructions for Paper Setter:

Question paper will have five sections/units , A B C D and E. Students are required to attempt five questions, selecting at least one question from each section. Section E, ie, question no 9 is compulsory covering the entire syllabus uniformly. All questions carry equal marks.

#### Course Objectives:

- To introduce the concept of Home Science, broad fields and the applications of various fields of Home Science.
- To get an over view of Family Resource Management and Interior Decoration, and the application in day-to-day life.
- To understand the basics of Foods and Nutrition and their applications.

#### Course Content:

##### UNIT 1

##### Introduction to Home Science

- Meaning and importance of Home Science, Broad fields of Home science
- Entrepreneurship in Home Science, Agencies promoting Entrepreneurship – Commercial banks, district industries, Co-operative societies.

##### UNIT II

##### Introduction to Interior Designing

- Introduction and objectives of Interior Designing , Elements of art – Line, Form, Pattern, Texture, Colour, Light, Space, Principles of Design: Harmony, Proportion, Balance, Emphasis, Rhythm

- Importance of Colour in Home Decoration and characteristics of colour, Factors affecting selection of colour in Home Decoration, Colour Schemes.

### UNIT III

#### Introduction to Nutrition-

- Definition of Food, Nutrients, Nutrition, Optimum and adequate Nutrition, Malnutrition, Importance and Functions of food-physiological, psychological and social
- Concept of Balanced diet, My Plate and Classification of Food based on their functions
- Methods of Cooking Food- Dry heat, Moist heat, Cooking with oil and Microwave cooking.; Advantages and disadvantages of each method and effect of cooking on food nutrients

### Unit IV

#### Food constituents

- Macronutrients: Functions, Food sources, Requirements, and Effect of Deficiency - Carbohydrates, Proteins and Fats.
- Micronutrients: Functions, Food sources, Requirements, and Effect of Deficiency- Fat soluble: Vitamin A, D, E, K
- Functions and Sources- Water and Fibre

### PRACTICAL

Credit Hours: 2/week

Duration of class : 4hrs/week

Duration of exams : 3 hrs

Maximum Marks: 50

Theory Paper: 40

Internal Assessment: 10

Note: Each group will have 12-15 students

1. Table setting for different Meals, Table manners and Napkin folding.
2. Making Colour wheel and different Colours Schemes for Home Decoration
3. Floor decoration for different occasions: Alpana / Rangoli

4. To understand the concept of Weights and Measurements (raw and cooked food).
5. To prepare snacks using various methods of cooking (dry heat, moist heat, shallow and deep frying- 2 each).
6. Different styles of cutting fruits and vegetables. Salad decoration/ dressings.
7. Soups- Stimulating and nourishing (one each).

**Project:** i. Survey of Food labels in order to study their nutritional facts

Or

Survey of Eating habits of Five students.

Note: Reports to be submitted.

ii. Preparation of Decorative Article (Any one). Pot decoration (By mix media, decoupage etc) /candle decoration/ Dia /Thali decoration/MANDELLA ART etc.

**References:**

1. Mann M. K. Home management for Indian Families
2. Premavathy S, Batra S, Mehera P. An Introduction to Family Resource Management
3. Gupta S, Garg N, Aggarwal A, Kaur, J (2014). Text book of Family Resource Management, Hygiene and Physiology, Kalyani Publishers.
4. Srilakshmi B, (2018), "Nutrition Science" New Age International New Delhi.
5. Mudambi SR and Rajgopal MB, (2022) "Fundamentals of Food and nutrition", New Age International.
6. Khanna K, Gupta S, Seth R, Mahhna R, Rekhi T (2004). The art and science of cooking. A practical manual revised edition. Elite publishing House pvt. Ltd.
7. Gupta S, Garg N, Aggarwal A, Kaur J, Gill P (2016). Text book of foods and nutrition and child development, Kalyani Publishers.
8. Nutrient requirements for Indians (RDA 2020) – A report of the expert group, ICMR-NIN, Department of health research, Ministry of Health and family welfare, Govt. of India.
9. Randhawa RK (2019) Pardeep's Nutrition and Child development. Pardeep Publishers, Jalandhar.



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**Home Science (Major/ Minor) -Semester II**  
**FUNDAMENTAL OF CLOTHING AND TEXTILES AND HUMAN DEVELOPMENT**

**THEORY**

Credit Hours: 2/week

Maximum Marks: 50

Duration of class : 2 hrs/week

Theory Paper: 40

Duration of exams : 3 hrs

Internal Assessment: 10

**Instructions for Paper Setter:**

Question paper will have five sections/units , A B C D and E. Students are required to attempt five questions, selecting at least one question from each section. Section E, ie, question no 9 is compulsory covering the entire syllabus uniformly. All questions carry equal marks.

**Course Objectives:**

- To study the Basics of Clothing and Textiles and Applications of Basic Techniques of Fabric Preparation and Construction.
- To acquire an understanding of the life span perspective, developmental stages, principles of human development, methods of studying human development and behavior.

**UNIT I**

**INTRODUCTION TO CLOTHING AND TEXTILES**

1. Importance and Scope of Clothing and Textile.
  - Study the Factors affecting Selection of Clothing- Age, Season, Income, occasion, occupation, gender, fashion.
2. A Study of Tools and Equipment, their use and care- Measuring Tools, Marking Tools, Cutting Tools, Sewing Tools and Finishing Tools.
  - Functioning, Maintenance and Defects of Sewing Machine.

**UNIT II**

**BASICS OF CLOTHING AND TEXTILES**

*Handwritten mark*

3. Basic Terminology: Selvedge, Grain, Ease, Bias, True Bias, Seam, Landmark, Darts, Stay-Stitching, Notches, silhouette.
  - Importance and Techniques of Anthropometric Measurements.
4. Preparation of Fabric for Construction, Shrinking and Straightening.
  - Tools of Drafting, steps involved in Drafting, Points to be kept in mind while making a Draft, Advantages of Drafting.

### UNIT III

#### Introduction to Human Development

5. Importance of Human Development
  - Meaning, Definition, scope of Human Development,
  - Growth and development and Principles of development
6. A brief overview of developmental stages of human Development.
  - Effect of Heredity and Environment on Human Growth and Development.

### UNIT IV.

#### Childhood- Early & middle

7. Developmental milestones, physical, social, emotional, cognitive and language development.
8. Influence of environmental deprivation and stimulation on growth and development of children.

### PRACTICAL

Credit Hours: 2/week

Duration of class : 4 hrs/week

Duration of exams : 3 hrs

Maximum Marks: 50

Theory Paper: 40

Internal Assessment: 10

Note: Each group will have 12-15 students

1. Make samples of the Following:

- (a) Tacking, running stitch, hemming, Back stitch, Fasteners using button hole stitch.
- (b) Seams: Flat seam, Counter hem, Mantua Maker, French Seam, Run and Fell.
- (c) Processes: Continuous wrap, Pleats, Gathers into a band, Tucks.

2. Taking Body Measurement of a Child and Adult.

3. Methods and techniques of child study

- a. Interviews – 2
- b. Observations - 2

6. PROJECT:

- i. Study the Changing trends in Clothing among women.
- ii. Interview of mothers related to their feeding and weaning practices.

Report to be submitted

**Reference Books:**

1. Singer Sewing Book, Mary Brocks Bichen, McGraw Hill Book Company, Inc., New York, Toronto, London, 1953.
2. Basic Processes & Clothing Construction, Sherie Doongaji & Raushni Deshpande, Raaj Prakashan, New Delhi (Fourth Revised edition).
3. Pattern Drafting Vol. III, Dress Making, Kamakura—Shobo Publishing Co. Ltd., Tokyo, Japan, 1972 (Fifth Edition).
4. Practical Dress Design, Principles of Fitting and Pattern Making, Mabel D. Erwin, The Macmillan Company, New York, Ninth Printing, 1966.
5. Indian Embroidery, Its Variegated Charms, Savitri Pandit, Faculty of Home Sciences, Baroda, 1976, First Edition.
6. The Basic Book of Sewing, Eve Harlow Pub. Octopids Books Ltd., London.
7. Simple Dress Making 2, Maureen Guddsworthy Pub. Mills & Boon Ltd., London.
8. Gupta S, Garg N, Aggarwal, A. Kaur, J., Gill, P. (2016). Text book of foods and nutrition and child development, Kalyani Publishers.
9. Randhawa RK. Pradeep's Clothing Textiles and their Care (2017)
10. Gupta L, Gupta S, Garg N, Aggarwal, A. Kaur, J., Gill, P, (2022). Textbook of Clothing, Textiles, Laundry and Fashion Designing, Kalyani Publishers
11. Papalia, D. E, Olds, S.W. and Feldman, R.D. (2004). Human Development 9th Edition. Tata McGraw.
12. Santrock, J.W. (2007). Lifespan Development (10th ed.) University of Texas, Dallas.
13. Berk, L. E. (2017). Development through the lifespan (7th ed.). Pearson.



# ANNEXURE - 2

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Scheme of Studies  
B.Sc. Home Science (Hons.) 2023-24 (Under NEP 2020)  
Semester - I

Sr. No.	Subject	Course	Credit (Th.+Pr.)			Theory Marks			Practical Marks			Total
			T	P	Total	Paper	IA*	Total	Paper	IA*	Total	
1.	Major	(i) Introduction to Foods & Nutrition-I	2	1	3	40	10	50	20	5	25	75
		(ii) Introduction to Human Development-I	2	1	3	40	10	50	20	5	25	75
2.	Minor	i) Introduction to Family Resource Management-I	2	1	3	40	10	50	20	5	25	75
		(ii) Introduction to Clothing & Textiles-I	2	1	3	40	10	50	20	5	25	75
3.	Inter-disciplinary Course	Introduction to Applied Sciences	2	1	3	40	10	50	20	5	25	75
4.	Ability Enhancement Course	English Communication Skills-I	0	2	2				40	10	50	50
5.	Skill Enhancement Courses (SEC)	Food Safety & Preservation-I or Decorative Dyeing or Nanny Care-I or Interior Space Designing or Mass Communication & Journalism- I	0	3	3	-	-	-	60	15	75	75
6.	Common Value-Added Courses	Basics of Computer-I or Music and Dance or Physical Education	0	2	2	-	-	-	40	10	50	50
7.	Compulsory	NCC or NSS	Non-Credit									Satisfactory/Unsatisfactory
8.	Total		12	10	22							550

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**Scheme of Studies**  
**B.Sc. Home Science (Hons.) 2023-24 (Under NEP 2020)**  
**Semester-II**

Sr. No.	Subject	Course	Credit (Th.+Pr.)			Theory marks			Practical Marks			Total
			T	P	Total	Paper	IA*	Total	Paper	IA*	Total	
1.	Major	i) Introduction to Family Resource Management-II	2	1	3	40	10	50	20	5	25	75
		(ii) Introduction to Clothing & Textiles-II	2	1	3	40	10	50	20	5	25	75
2.	Minor	(i) Introduction to Foods & Nutrition-II	2	1	3	40	10	50	20	5	25	75
		(ii) Introduction to Human Development-II	2	1	3	40	10	50	20	5	25	75
3.	Inter-disciplinary Course	Economics of Business Development	2	1	3	40	10	50	20	5	25	75
4.	Ability Enhancement Course	English Communication Skills-II	0	2	2	-	-	-	40	10	50	50
5.	Skill Enhancement Courses (SEC)	Food Safety & Preservation-II or Textile Printing or Nanny Care-II or Exterior Space Designing or Mass Communication & Journalism-II	0	3	3	-	-	-	60	15	75	75
6.	Common Value-Added Courses	Basics of Computer-II or Music and Dance-II or Physical Education-II	0	2	2	-	-	-	40	10	50	50
7.	Compulsory	NCC or NSS	Non-Credit									Satisfactory/Unsatisfactory
8.	Total		12	10	22							550

- IA\* = Internal Assessment
- NCC/NSS are compulsory with Satisfactory/Unsatisfactory grading.
- Any one SEC to be opted by the student. SEC will be allocated on the basis of merit & availability of seats.
- Students who opt to exit after completion of the first year and have secured 44 credits will be awarded a UG certificate if, in addition, they complete one internship of 4 credits in relevant field during the summer vacation of the first year.

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**B.Sc. Home Science (Hons.)**  
**Semester-I**  
**Introduction to Foods and Nutrition - I (Major)**  
**Theory**

**Credit: 2**

**Duration of Class: 2hrs/ week**

**Duration of Exam: 3hrs**

**Maximum Marks: 50**

**Paper: 40**

**Internal Assessment: 10**

**Instructions to Examiner:**

- Each theory paper will be of three hours duration.
- Question paper will have four sections/units. Paper setter will set a total of nine questions comprising of two questions from each section and one compulsory question of short answer type covering the whole syllabus.
- Student will attempt one question from each unit and the compulsory question (Total of five questions)
- All questions may carry equal marks, unless specified.

**Course Objectives:**

- To introduce the different areas of Foods and Nutrition.
- To gain knowledge about basic concepts of Foods and Nutrition.
- To enable students to acquire fundamental and basic knowledge of Nutrition.

**Course Content:**

**Unit- I**

1. Introduction and Definition of:
  - Food
  - Nutrition
  - Optimum Nutrition
  - Under Nutrition
  - Over Nutrition
  - Health
  - Functions of Food- physiological, psychological and social
2. Functions and sources of:
  - Macro nutrients- Carbohydrates, Proteins and Fats

**Unit- II**

3. Functions and sources of:
  - Micro nutrients- Minerals: Calcium, Iron and Iodine;
  - Vitamins: Fat soluble - (A, D, E, K)
  - Water soluble - B complex (thiamine, riboflavin, niacin), C
4. Functions and sources of-
  - Water
  - Fiber

**Unit- III**

5. Study of the food groups with respect to their classification and nutritive content
  - Cereals
  - Pulses and legumes
  - Fruits and vegetables
6. Study of the food groups with respect to their classification and nutritive content

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- Beverages- tea, coffee, cocoa
- Fats and oils
- Sugar and jaggery

#### Unit- IV

7. Study of the food groups with respect to their classification and nutritive content
  - Milk and milk products
  - Eggs, meat, fish and poultry
8. Study of the food groups with respect to their classification and nutritive content
  - Nuts and oil seeds
  - Spices and Herbs

#### Recommended Readings:

1. Discovering Nutrition, Paul Insil, Don Ross, Kimberley McMahon, Melisa Bernstein, Jones and Bartlett Learning, 4th Edition, 2012.
2. Food Hygiene and Sanitation, Sunetra Roday, Tata McGraw-Hill Education Private Limited, 2011.
3. Food Science and Nutrition, Sunetra Roday, Oxford University Press, 2008.
4. Food Science, B. Srilakshmi, New Age International Publishers, 2012.
5. Foods Facts and Principles, N. Shakuntala Manay, M. Shadaksharaswamy, New Age Publishers, 2013.
6. Fundamentals of Meal Management, Margaret McWilliams, Pearson, 2008.
7. Textbook of Nutrition and Dietetics, Kumud Khanna, Elite Publishing House Pvt. Ltd, 2008.
8. Nutrition and Dietetics, Shubhangini A Joshi, Tata McGraw-Hill Publishing Company Limited, 2009.
9. Basic Food Preparation: A Complete manual, Faculty of Lady Irwin College, Orient Longman publishers, 2008.



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**B.Sc. Home Science (Hons.)**  
**Semester-I**  
**Introduction to Foods and Nutrition - I (Major)**  
**Practical**

**Credit: 1**

**Duration of Class: 2hrs/ week**

**Duration of Exam: 3hrs**

**Maximum Marks: 25**

**Paper: 20**

**Internal Assessment: 05**

**Instructions to Examiner:**

- The external and internal examiners are requested to be present at the examination centre before the commencement of the examination.
- Set the question papers in consultation with the internal examiner and conduct the practical examination as per the scheme.

**Course Objectives:**

- To understand the concepts of weights and measurements (raw and cooked food) and its importance.
- To acquire skills in food preparation technique of food.
- To use appropriate methods of cooking for preparation of specific food products.
- To observe and understand the principals involved in preparation of different foodstuffs.
- To understand the concept of food adulteration.

**Course Content:**

1. Identification of foods.
2. Concept of portion cooking
3. Raw and cooked weight of foods.
4. Developing and preparing recipes rich in – proteins (Pulses), carbohydrates (Cereals), fat (Milk), fibre (Vegetables), calcium (Milk), iron (Egg), vitamin A (Fruits) and vitamin C (Beverages).

**Recommended Readings:**

1. Discovering Nutrition, Paul Insil, Don Ross, Kimberley McMahon, Melisa Bernstein, Jones and Bartlett Learning, 4th Edition, 2012.
2. Food Hygiene and Sanitation, SunetraRoday, Tata McGraw-Hill Education Private Limited, 2011.
3. Food Science and Nutrition, SunetraRoday, Oxford University Press, 2008.
4. Food Science, B. Srilakshmi, New Age International Publishers, 2012.
5. Foods Facts and Principles, N. ShakuntalaManay, M. Shadaksharaswamy, New Age Publishers, 2013.
6. Fundamentals of Meal Management, Margaret McWilliams, Pearson, 2008.
7. Textbook of Nutrition and Dietetics, KumudKhanna, Elite Publishing House Pvt Ltd, 2008.
8. Nutrition and Dietetics, Shubhangini A Joshi, Tata McGraw-Hill Publishing Company Limited, 2009.
9. Basic Food Preparation: A Complete manual, Faculty of Lady Irwin College, Orient Longman publishers, 2008.



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**B.Sc. Home Science (Hons.)**  
**Semester-I**  
**Introduction to Human Development –I (Major)**  
**Theory**

**Credit: 2**

**Duration of Class: 2hrs/week**

**Duration of Exam: 3 hrs**

**Maximum Marks: 50**

**Paper: 40**

**Internal Assessment: 10**

**Instructions to Examiner:**

- Each theory paper will be of three hours duration.
- The question paper will have four sections.
- A total of nine questions comprising of two questions from each unit and one compulsory question of short answer type covering the whole syllabus will be set.
- All questions carry equal marks unless specified.
- Students will be expected to attempt one questions from each unit and the compulsory question.

**Course Objectives:**

- Introduce the concepts of human development to students and link it as an interdisciplinary field
- To discuss the importance and applied scope of the subject
- To discuss the developments in the Prenatal and Neonatal phase of development

**Course Content:**

**Unit 1**

1. Definition and concept of Human Development
2. Scope of the field of human development and linkage with other fields.

**Unit II**

3. Concept of growth and development and Influence of heredity and environment. Nature vs Nurture
4. The beginning of Human life-Stages of Prenatal period and factors influencing it.

**Unit III**

5. Process of child birth-Types, Complications and Neonatal health and responsiveness
6. Reflexes of neonates

**Unit IV**

7. Effect of environmental stimulation and deprivation on development
8. Brief overview of the developmental stages of Human Development

**Recommended Readings:**

1. Berk, L.E (1996). Child Development. New Delhi: Prentice Hall
2. Craig, G. (1999). Human Development. NJ: Prentice Hall.
3. Cole, M., & Cole, S. (1995). The Development of children. NY: Freeman & Co.
4. Dacey, J.S & Travers, J.F. (2000). Human Development across life span, Mc Graw Hill, New York.
5. Papalia, D.E (1978). Human Development. NY: McGraw Hill Book Company

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**B.Sc. Home Science (Hons.)**  
**Semester-I**  
**Introduction to Human Development –I (Major)**  
**Practical**

**Credit: 1**

**Duration of Class: 2hrs/week**

**Duration of Exam: 3 hrs**

**Maximum Marks: 25**

**Paper: 20**

**Internal Assessment: 05**

**Instructions to Examiner:**

- Each practical paper will be of three hours duration
- The question paper should cover entire syllabus.
- The file work and viva voce will be of five marks each (Total = 10 marks).

**Course Objectives:**

- To introduce methods of studying human development.
- To acquaint students with issues related to Human development
- To present the applied perspective of human development

**Course Content:**

1. Observation method. Making a video while observing an infant.
2. Preparation of a poster on any topic pertaining to Human Development.
3. Questionnaire method. Preparation of an interview schedule related to precautions taken by the young mother during pregnancy.
4. Recording of reflexes of newborn babies
5. Prepare a toy for an infant.

**Recommended Readings:**

1. Berk, L.E (1996). Child Development. New Delhi: Prentice Hall
2. Craig, G. (1999). Human Development. NJ: Prentice Hall.
3. Cole, M., & Cole, S. (1995). The Development of children. NY: Freeman & Co.
4. Dacey, J.S & Travers, J.F. (2000). Human Development across life span, Mc Graw Hill, New York.
5. Papalia, D.E (1978). Human Development .NY: McGraw Hill Book Company.

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**B.Sc. Home Science (Hons.)**  
**Semester-I**  
**Introduction to Family Resource Management-I (Minor)**  
**Theory**

**Credit: 2**

**Max. Marks: 50**

**Duration of Class: 2hrs/week**

**Paper: 40**

**Duration of Exam: 3hrs**

**Internal Assessment: 10**

**Instructions to Examiner:**

- Question paper will have four sections.
- Examiner will set a total of nine questions comprising of two questions from each unit, and one compulsory question of short answer type covering the whole syllabus.
- Student will attempt one question from each unit and the compulsory question.
- All questions may carry equal marks, unless specified.

**Course Objectives:**

- To understand the fundamentals of resource management in the changing scenario.
- To gain an understanding of resource availability during different stages of family life cycle.
- To inculcate skills in identifying, creating, selecting and using available resources judiciously with emphasis on maximization, conservation and sustainable use of resources.
- To learn the different tools and techniques of money, time, energy and space management.

**Course Content:**

**Unit-I**

**1. Introduction to Management:**

- Concept, definitions, need & scope of management
- Management in family living

**2. Managers and Management:**

- Managerial roles, Functions of a Manager.
- Managers vs. Leaders, Types of Managers

**Unit-II**

**3. Resources in Management:**

- Meaning, definition & characteristics of resources
- Classification of resources

**4. Resources & Sustainability:**

- Concept & need of Sustainability, Factors affecting use of resources
- Sustainable use of resources

**Unit-III**

**5. Money Management:**

- Concept, Sources & Types of Family Income
- Budgeting, Steps in Family Budget Planning, Advantages and Limitations of family budget planning
- Savings, Investments, Avenues for savings & investments

**6. Time Management:**

- Concept, Balance in time use, Tools in time management
- Steps in making Family Time Plans & Schedules, tips for time management

**Unit-IV****7. Energy Management:**

- Concept, Classification of Efforts, Fatigue & types
- How to avoid fatigue, Work Simplification

**8. Space Management:**

- Concept, Spatial Planning, Controlling use of space
- Principles of Good Storage, Aesthetics Arrangement of Spaces

**Recommended Readings-**

1. Gross. L. H. and Crandal.E.W., 1967,. Management for Modern Families. Appleton Centurion Crafts, New York.
2. Seetharaman P; Batra S. and Mehra P 2005. An Introduction to Family Resource Management. CBS Publishers and distributors, New Delhi.
3. Nickell.P. and Dorsey. M.J. 2002 Management in Family Living 4th Edition. CBS Publishers.
4. Kaur.H., and Macnell., 1994. Theory and Practice of Home Management. Surjeet Publishers. New Delhi.
5. Mital, M., Sawhney, H. K. (2015). *Family Finance and Consumer Studies*. New Delhi: Elite Publishing House Pvt. Ltd.
6. Rao V.S. and Narayana P.S. (2007). *Principles and Practices of Management*. New Delhi: Konark Publishers Pvt. Ltd.
7. Varghese A.M; Ogale N.N and Srinivasan K. 2006. Home Management. New Age International Pvt. Ltd Publishers, New Delhi.
8. Seetharaman P. and Pannu P. 2012. Interior Design and Decoration. CBS Publishers and Distributors, New Delhi.
9. Rao. M. P. 2012 Interior Design - Principles and Practice, Standard Publisher Distributor, Delhi.
10. Veena G. and et. all Introduction to Interior Design & Decoration, Dominant Publishers and Distributors, New Delhi.



**B.Sc. Home Science (Hons.)**  
**Semester-I**  
**Introduction to Family Resource Management-I (Minor)**  
**Practical**

**Credit: 1**

**Duration of Class: 2hrs/week**

**Duration of Exam: 3hrs**

**Max. Marks: 25**

**Paper: 20**

**Internal Assessment: 05**

**Instructions to Examiner:**

- The external and internal examiners are requested to be present at the examination center before the commencement of the examination.
- Set the question papers in consultation with the internal examiner and conduct the practical examination as per the scheme.

**Course Objectives:**

- To develop skills in understanding self through SWOC analysis.
- To gain an understanding of resource availability during different stages of family life cycle.
- To learn the different tools and techniques of money, time and energy management.

**Course Content:**

1. Identification and development of self as a resource: SWOC analysis, Who Am I, Micro Lab
2. Case study presentation/ Portfolio on Resource Conservation and Optimization
3. Budget Planning for self and family
4. Preparation of time plans for self and family
5. Work Simplification Techniques

**Recommended Readings:**

1. Gross. L. H. and Crandal.E.W., 1967,. Management for Modern Families. Appleton Centurion Crafts, New York.
2. Seetharaman P; Batra S. and Mehra P 2005. An Introduction to Family Resource Management. CBS Publishers and distributors, New Delhi.
3. Nickell.P. and Dorsey. M.J. 2002 Management in Family Living 4th Edition. CBS Publishers.
4. Kaur.H., and Macnell., 1994. Theory and Practice of Home Management. Surjeet Publishers. New Delhi.
5. Mital, M., Sawhney, H. K. (2015). *Family Finance and Consumer Studies*. New Delhi: Elite Publishing House Pvt. Ltd.
6. Rao V.S. and Narayana P.S. (2007). *Principles and Practices of Management*. New Delhi: Konark Publishers Pvt. Ltd.
7. Varghese A.M; Ogale N.N and Srinivasan K. 2006. Home Management. New Age International Pvt. Ltd Publishers, New Delhi.
8. Seetharaman P. and Pannu P. 2012. Interior Design and Decoration. CBS Publishers and Distributors, New Delhi.

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**B.Sc. Home Science (Hons.)**  
**Semester - I**  
**Introduction to Clothing and Textiles – I (Minor)**  
**Theory**

**Credit: 2**

**Duration of Class: 2hrs/week**

**Duration of Exam: 3hrs**

**Maximum Marks: 50**

**Paper: 40**

**Internal Assessment: 10**

**Instructions to examiner:**

- Each theory paper will be of three hours duration.
- Question paper will have four units.
- A total of nine questions comprising of two questions from each section and one compulsory question of short answer type covering the whole syllabus.
- Student will attempt one question from each UNIT and the compulsory question (total of five questions).
- All questions may carry equal marks, unless specified.

**Course Objectives:**

- To impart knowledge of:
  - Machines and tools used for sewing
  - Origin of Clothing
  - Textile Design Concepts

**Course Content:**

**Unit –I**

1. Equipment and supplies used in clothing construction: their uses and care.
2. Sewing machine:
  - Parts of sewing machine and its accessories
  - Common defects of sewing machine
  - Care of sewing machine

**Unit-II**

3. Clothing for different age groups with special reference to fabrics, colors, style and details:
  - Infants
  - Toddlers
  - Pre-school children
  - Adolescents
  - Adults
  - Elderly

**Unit-III**

4. Communication through Clothing : Age, Sex, Marital Status, Cultural Influences, Physical Appearance, Lifestyle, Occupation, Economic Status, Social Status, Values and Attitudes, Interests, Political Beliefs, Religious Beliefs, Industrialization, Emotions and Conformance to Groups
5. Reasons for wearing Clothes:
  - Protection theory
  - Modesty theory
  - Adornment theory
  - Combined need theory

**Unit-IV**

6. Design- definition and its types on the basis of:

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- Symmetry: Symmetrical and Asymmetrical
- Motif: Natural, Abstract, Geometrical, Stylized
- Garment design: Structural, Decorative

**Recommended Readings:**

1. Irene.E.McDermoll and Jeanne.L.Norris, "Opportunities in clothing, Fashion, Merchandising. Chas.A.Bennette Co.Inc, Peoria, Illinois (1968).
2. McCall's, "Sewing in colour- Home dressmaking, Tailoring, Mending, soft furnishings, The Hamlyn Publishing group Ltd. (1963).
3. Kefgen.M and Touchie.P, "Individuality in clothing selection and personal appearance", MacMillan Publishing Co, Inc.
4. Dantyagi.S, "Fundamentals of Textiles and their Care," Orient Longman Ltd, New Delhi.
5. "A Reader's Digest Step by Step guide- Sewing and Knitting", Reader's Digest (Australia) Pty Ltd.
6. "The complete Book of sewing-A practical step by step guide to sewing techniques" Dorling Kindersley publication, (1996).
7. "Singer sewing step by step", CY Decosse, Incorporated Minne Tonka, USA.(1990).

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**B.Sc. Home Science (Hons.)**  
**Semester - I**  
**Introduction to Clothing and Textiles – I (Minor)**  
**Practical**

**Credit: 1**

**Duration of Class : 2hrs/week**

**Duration of Exam: 3hrs**

**Maximum Marks: 25**

**Paper: 20**

**Internal Assessment: 05**

**Instructions to examiner:**

- Practical paper will be of 3 hours duration
- Question paper should cover all the topics
- Internal choice may be given in all questions

**Course Objectives:**

- To impart knowledge of:
  - Machines and tools used for sewing
  - Origin of Clothing
  - Textile Design Concepts

**Course Content:**

1. Equipment and Supplies
2. Development of Motifs
  - a. Geometrical
  - b. Natural
  - c. Stylized
  - d. Abstract
3. Placement of motifs to Develop Design: Mirror, Brick, Diagonal, Horizontal and Vertical
4. Different Layouts-Central, Corner, Border and All-over

**Recommended Readings:**

1. Aspelund Karl, "The Design Process", Fairchild Books New York.
2. Reader's Digest Complete Guide to Sewing.
3. Dorothy Wood, 'The Practical Encyclopaedia of Sewing'.
4. Premlata Mullick, "Textbook of Textile Design", Kalyani Publishers, 2006
5. 10. W. Clarke, "An Introduction to Textile Printing", Butterworth and Co. Publishing Limited, 1974
6. Sulahria Diamond, "Inside Design", A department of Harper and Row Publishers Inc., New York, 1977
7. Jenny Udale, "Textile and Fashion", Bloomsbury Publishing, UK, 1988
13. Allan Smith, "Fabric Printing", Frederick Warne and Co. Ltd., London, 1953
8. Hamlyn, Mc Calls, "Sewing in Colors", Hamlyn Publishing Group Limited, 1964

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**B.Sc. Home Science (Hons.)**  
**Semester - I**  
**Introduction to Applied Sciences (Inter-Disciplinary Course)**  
**Theory**

**Credit: 2**

**Duration of Class : 2hrs/week**

**Duration of Exam: 3 hrs**

**Max Marks: 50**

**Paper: 40**

**Internal Assessment: 10**

**Introduction to Examiner:**

- Each Theory paper will be of three hours duration.
- Question paper will have four units
- A total of eight questions comprising of two questions from each unit
- Student will attempt one question from each Unit (total of four questions)
- All questions may carry equal marks, unless specified

**Course Objectives:**

- To provide Knowledge regarding the Application of Science in day to day life

**Course Content:**

**Unit-I**

1. Study of Vegetative Propagation by artificial Methods: Cutting- types of cutting, different types of stem cutting, size, season, selection of branch, rooting medium and treatments. Layering- Principle, types of layering- Air layering, ground layering. Budding- Principle, types of budding- Patch budding, ring budding, T-shield budding. Grafting- Principle, types of grafting- whip and tongue, wedge grafting, side grafting, saddle grafting and crown grafting.
2. Principle and planning in layout of kitchen Garden: Sowing of vegetable seeds, preparation of soil and beds, transplanting, crop rotation, inter cropping, successional cropping, staking, trellising, harvesting, storage, plant diseases and use of common pesticides and herbicides etc.

**Unit-II**

3. Apiculture and Sericulture
4. Life history and economic importance of storage pests: Rice weevil (*Sitophilus*), Lesser Grain Borer (*Rhyzopertha*), Gram Dhora (*Callosobruchus*) and Rust Red Flour Beetle (*Tribolium*) and their control.

**Unit-III**

5. Chemistry of Polymers and Fertilizers: Polymerization and Polymers- Definition and classification, Polymers in textiles: Chemistry of synthetic fibers- Nylon, Polyester and Acrylic fibers. Fertilizers: Nitrogen, Potassium and Phosphorus..
6. Applications of Chemistry: Soaps & detergents; introduction and their Cleansing action. Cosmetics; brief study and elementary idea about ingredients- cold cream, vanishing cream, lipstick, mascara. Food Additives.

**Unit-IV**

7. Basic concepts and short notes on: Solar Energy and Solar cells, Energy efficient household devices, Circuit breaker, Optical fibres, Sound, Insulation, Conduction, Convection, Radiation- Applications/Illustrations in day to day life, Uses of Lasers-Medical , Scientific, Industry and Commercial, Radioisotopes and their uses in Medicine, Industry, Agriculture, Radiation hazards and Safety Measures.

**Recommended Reading:**

1. NCERT Books of Class 11 & 12
2. Home Gardening- Shashi Kumar
3. Applied Chemistry for Home Science and Allied Science by Thanamma, Jacob.



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4. Chumber & Gogia, Pradeep Fundamental physics (XI, XII).
5. Gupta S.K. Modern ABC of Physics (XI, XII).
6. Jaiswal J. N., Comprehensive Practical Physics (XI, XII).

*Answer*

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**B.Sc. Home Science (Hons.)**  
**Semester - I**  
**Introduction to Applied Science (Inter-Disciplinary Course)**  
**Practical**

**Credit: 1**

**Duration of Class : 2hrs/week**

**Duration of Exam: 3 hrs**

**Max Marks: 25**

**Paper: 20**

**Internal Assessment: 05**

**Instructions to Examiner:**

- Each theory paper will be of three hours duration
- Question paper will have four units
- A total of four questions comprising of one question from each unit in viva-voce
- Student will attempt all questions (total of four questions)
- All questions may carry 4 marks each and viva-voce carries 4 marks

**Course Objectives:**

- To provide Knowledge regarding the Application of Science in day to day life.

**Course Content:**

**Unit-I**

1. To prepare temporary slides of Onion Peel and Rhoeo leaf.
2. To study vegetative methods of propagation by Cutting- Terminal Cutting, Straight Cutting, Mallet Cutting, Heel Cutting.  
Grafting methods- wedge grafting, whip and tongue Grafting. *leaf*

**Unit-II**

3. Determination of ABO Blood group.
4. Measuring Blood pressure

**Unit-III**

5. Preparation of vanishing cream and cold cream, and liquid soap.
6. Determination of degree of hardness of tap water volumetrically and determination of melting point of organic compounds.

**Unit-IV**

7. Assignment/Investigatory project *more*

**Recommended Reading:**

1. Home Gardening- Shashi Kumar ✓
2. A test Book of Practical Zoology, Vertebrate, by S.S. Lal.
3. Jaiswal J. N., Comprehensive Practical Physics (XI, XII).



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**Under Graduate Programme in Home Science (Semester I)**  
**Ability Enhancement Course**  
**English Communication Skills-I**  
**(Practical)**

**Credit- 2**

**Duration of Class-4 hrs/week**

**Duration of Exam- 3hrs**

**Max. Marks- 50**

**Paper- 40**

**Internal Assessment- 10**

**Objectives:** Overcoming stage fright and building confidence; learning to organize and structure a speech effectively; developing effective delivery skills, such as voice modulation and body language; improving communication skills.

**Instructions for Examiner:**

The examiner shall consider assignment of the student, practical file, take practical exam & viva voce based on syllabus for evaluating the students' performance in the examination.

**Unit-I**

**1. Communication:**

- a. What is Communication? Types of Communication,
- b. Different Aspects of Communication, Barriers in Effective Communication,
- c. Group Communication: Factors in Group Communication, Group Decisions, Brainstorming, Effective presentations (PowerPoint Presentations)

**Unit II**

**2. Business Communication:**

- a. Interaction in Formal/Informal Situation: Greetings, replying to greetings, introduction of oneself and others.
- b. Welcoming, Bidding farewell, Appreciating in an interview, Talking about oneself, describing one's job, work place, likes and dislikes
- c. Future plans, describing one's strength and weakness, abilities and qualifications.

**Unit-III**

**3. Reading Skills:**

- a. Reading Comprehension
- b. Paraphrase (Summarize a given paragraph)
- c. Methods of Effective Reading and Writing- Skimming and Scanning, Gists, Summaries
- d. Mock TV News Reading

**Unit-IV**

**4. Oral Presentations**

- a. Dialogue, Group Discussion
- b. Debate, Elocution,



- c. Anchoring, Public Address
- d. TED Talks, Narrating Events

**Suggested Readings:**

1. Veerendra Mishra. (2020) *English Language Skills: A Practical Approach*, Cambridge University Press.
2. Greenall, Simon, Michael Swan. (2010) *Effective Reading Teacher's book: Reading Skills for Advanced Students*. Cambridge University Press.
3. Langan, John (2008). *Ten Steps to Improving College Reading Skills*. 5 Ed. Townsend Press.
4. McWhorter, Kathleen T and Brette M Sember (2012). *College Reading and Study Skills*. 12 Ed.
5. Fawcett, Susan (2013). *Evergreen: A Guide to Writing with Readings*. 10 Ed. New York: Cengage Learning.
6. Hancock, Ophelia H. (2008) *Reading Skills for College Students*. 6 Ed. New York: Prentice Hall.
7. JColsen, Greta (1973). *Voice Production and Speech*, Pitman & Sons Ltd, Toronto.
8. Berry Cicely. *Your Voice and How to Use it Successfully*.
9. Binhan, Philip. *Executive English*, Longman Group, London..
10. Wren and Martin.(2009). *A Simple course of English Grammar and Composition*. Publisher S.Chand.



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**B.Sc. Home Science (Hons.)**  
**Semester-I**  
**Food Safety & Preservation – I (Skill Enhancement Course)**  
**Practical**

**Credit: 3**

**Duration of Class : 6hrs/ week**

**Duration of Exam: 3hrs**

**Maximum Marks: 75**

**Paper: 60**

**Internal Assessment: 15**

**Instruction to Examiner:**

- The external and internal examiners are requested to be present at the examination centre before the commencement of the examination.
- Set the question papers in consultation with the internal conduct the practical examination as per the syllabus.

**Course Objectives:**

- To introduce the different areas of food preservation
- To acquire knowledge of food preservation and preservation techniques
- To know the importance of basic principles of food preservation

**Course Content:**

- 1) Introduction to laboratory practice:
  - Instructions to work in lab laboratory
  - Introduction to food laboratory
  - Functions of food laboratory
- 2) Laboratory equipments and their usages:
  - Analytical Balance, Drying Oven, Muffle Furnace, Magnetic Stirrer, pH Meter, Moisture Balance, Refrigerator, Dessicator, Hot plate, Grinder
  - Equipment features, principles and working
- 3) Preservation by drying:
  - Drying of Fruits (any two)
  - Drying of Vegetable (any two)
  - Drying of seeds (any two)
- 4) Preservation by heat treatment:
  - Blanching of Vegetables
  - Pasteurization of milk
  - Sterilization of food products
- 5) FSSAI act, rules and regulations for preserved food items.
- 6) Market survey of preserved food items available in the market.

**Recommended Readings:**

1. Kalila M and Sood S (2019). Food Preservation and processing. Kalyani Publications.
2. Adom MR and Moss MO (2008). Food Microbiology. Royal Society of Chemistry Publication.
3. James M (2000). Modern Food Microbiology. AN ASPEN PUBLICATION® Aspen Publishers, Inc. Gaithersburg, Maryland.

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**Under Graduate Programme in Home Science (Semester-I)**  
**Skill Enhancement Course (SEC)**  
**Decorative Dyeing**  
**Practical**

Credit-3

Duration of Class-6 hrs/week

Duration of Exam-3 hrs

Maximum Marks-75

Paper-60

Internal Assessment-15

**Instructions to examiner:**

1. Question paper should cover all the topics
2. Internal choice may be given in all questions

**OBJECTIVES:**

To acquaint students with textile dyeing and different techniques of dyeing

**Content:**

1. Equipments and material to be used for tie and dye.
2. Preparation of fabric and article before dyeing
3. Resist Techniques of dyeing-
  - Batik
  - Tie and Dye
4. Techniques of Tie and Dye
  - Texture- Marbelling, Twisting and Coiling
  - Knotting-length, square, triangle and all over design
  - Folding- Simple stripes, Edge stripes, folded square
  - Tritik-Single cloth, double cloth
  - Ruching- Band of textures
  - Chevron Spiral folding method
5. Submission of Articles with different dyeing techniques- Dupatta/T-shirt/Cushion cover

**Recommended Readings**

1. Shenai VA "Technology of Textile Processing. Technology of dyeing" (4th edition), Sewak Publications, Bombay 1998.
2. Corbanna, PB Textile Techniques (6th Edition), McGraw Hill Book Co. 1983.
3. Shenai, V Technology of Textile Processing, Technology of printing (3rd edition), Sewak Publications, Bombay 1998.

*Sharma*



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**B.Sc. Home Science (Hons.)**  
**Semester I**  
**Nanny Care-I (Skill Enhancement Course)**  
**Practical**

**Credit: 3**

**Duration of Class : 6hrs/ week**

**Duration of Exam: 3hrs**

**Maximum Marks: 75**

**Paper: 60**

**Internal Assessment: 15**

**Instructions for paper setter:**

- Each practical paper will be of three hours duration
- The question paper should cover entire syllabus.
- The file work and viva voce will be of five marks each (total = 10 marks).

**Course Objectives:**

- To train the students to be effective nannies.
- To provide opportunity to students to supplement household income.
- To train the students as skilled workforce.
- To provide quality substitute care in day care centres.
- To meet the growing need of supportive nanny facilities.

**Course Content:**

1. Caring for the child: Massaging and Bathing, Handling, Diapering, Dressing, Bottle sterilization, Feeding, Burping and Taking Temperature
2. Preparation of formula foods and home cooked foods. Make an immunization schedule for the child.
3. Conduct a market survey of items available for infant's namely feeding, clothing, toys.
4. Interviewing mothers on breast feeding and weaning practices being followed by them.
5. Visits to Hospital, baby clinic, child care centres and Neo-natal clinics and make a report of the same.
6. Making educational Toys for 0 – 2 years infant.
7. Observe young children in different institutional set up-creche, kindergarten and a make a report.

**Recommended Readings:**

1. Merchant, A.M. (2003) The Nanny Textbook, I Universe, New Delhi
2. Frankel, J. & Hobart, C. (2001). Nannyng-A Guide to Good Practice, Oxford.
3. Singh, M. (2015). The Art and Science of baby and Child Care: A Comprehensive book on Parenting.
4. Carton, S & Myers, C. (2013). The Nanny Book: The Smart Parent guide to Hiring, Firing and Every sticky situation in between. Macmillan Publishers, San Francisco.
5. Reejhsingant, A. (2011) Handbook of Baby and Child Care. Peacock Publishers. ISBN: 8124802491.

Neelam

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**B.Sc. Home Science (Hons.)**  
**Semester-I**  
**Interior Space Designing (Skill Enhancement Course)**  
**Practical**

**Credit: 3**

**Duration of Class : 6hrs/ week**

**Duration of Exam: 3hrs**

**Maximum Marks: 75**

**Paper: 60**

**Internal Assessment: 15**

**Instruction to Examiner:**

- The external and internal examiners are requested to be present at the examination center before the commencement of the examination.
- Set the question papers in consultation with the internal examiner and conduct the practical examination as per the syllabus.

**Course Objectives:**

- To get an overview about Interior Space Designing and the latest trends in the field.
- To develop an understanding about the basics of designing and its application in interiors spaces.
- To understand the concept and applications of elements and principles of design in interior spaces.
- To learn the skills of making interior spaces aesthetically beautiful and pleasing.

**Course Content:**

1. Worksheets on Types of Design: Naturalistic, Stylized, Abstract, Geometric, Traditional & Modern Designs.
2. Worksheet on Elements of Design.
3. Worksheet on Principles of Design.
4. Demonstration on Table Setting and Napkin Folding's for different occasions.
5. Demonstration on Flower Arrangements: dry flowers, fresh flowers, foliage.
6. Case Study Report/ Portfolio on Interiors of a Café/ Restaurant and Hotel/ Resort.

**Recommended Readings:**

1. Seetharaman P. and Pannu P. 2012. Interior Design and Decoration. CBS Publishers and Distributors, New Delhi.
2. Rao. M. P. 2012 Interior Design - Principles and Practice, Standard Publisher Distributor, Delhi.
3. Veena G. and et. all Introduction to Interior Design & Decoration, Dominant Publishers and Distributors, New Delhi.

*Seer*

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B.Sc. Home Science (Hons.)

Semester - I

Mass Communication and Journalism – I (Skill Enhancement Course)

Practical

**Credit: 3**

**Duration of Class : 6hrs/week**

**Duration of Exam: 3hrs**

**Max. Marks: 75**

**Paper: 60**

**Internal Assessment: 15**

**Instructions to Examiner:**

- Practical paper will be of three hours duration.
- Practical exam will be conducted on the basis of Assignments, File Work and Viva-Voce.

**Course Objectives:**

- To gain understanding of various communication systems.
- To appreciate nuances of various communication transactions for effective communication.
- To gain insight into the range and scope of traditional media, mass media, ICTs and New Media especially for social change.
- To introduce the students to the profession of Journalism.

**Course Content:**

1. Listening to a recorded speech in class and analysing the speech vis-a-vis 7Cs of Communication.
2. Watch any film and identify the barriers of communication between the characters with relation to the story line.
3. Group discussion on:
  - a. Cinema's role in promoting social change
  - b. Roles and responsibilities of reporter
4. Presentations on:
  - a. Functions of Mass Communication
  - b. Types of Journalism
  - c. News Reporting
5. Writing analytical pieces about current events
6. Maintaining a clippings file
7. Quizzes

**Recommended Readings:**

1. Dhama, O.P. Bhatnagar, O.P. (1985). *Education and Communication for development* (Second Edition). Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
2. Kumar, K. J. (2000). *Mass communication in India*. New Delhi: Jaico Publishing House.
3. De Bono, E. (2007). *How to Have Creative Ideas*. Random House
4. Ganaratne Shelton. (2000). *Handbook of the media*, Sage Publication
5. Kohli Vanita, (2003). *The Indian Media Business*, Sage Publication
6. Ludwig, Mark D. (2005). *Modern News Editing*. Willy Blackwell, New York.
7. McChesney Robert W. (2004). *The Problem of the Media*. Monthly Review Press.
8. Meera, R. (2009). *Feature Writing*. New Delhi: PHI Learning Pvt. Ltd.
9. Om Gupta, (2006). *Encyclopaedia of Journalism and Mass Communication*. Gyan Books Pvt. Ltd. ND



**B.Sc. Home Science (Hons.)**  
**Semester - I**  
**Basics of Computer – I (Common Value Added Course)**  
**Practical**

**Credit: 2**

**Duration of Class : 4hrs/week**

**Duration of Exam: 3hrs**

**Maximum Marks: 50**

**Paper: 40**

**Internal Assessment: 10**

**Instructions to Examiner:**

- The external and internal examiners are requested to be present at the examination centre before the commencement of the examination.
- Set the question papers in consultation with the internal examiner and conduct the practical examination as per the syllabus.

**Course Objectives:**

- To impart basic computer knowledge to students.
- To enable students to concept of fundamentals and its applications.
- After completing the course, the incumbent is able to the use the computer for basic purposes of preparing his personnel/business letters, viewing information on internet (the web), sending mails, etc.

**Course Content:**

**Section - I**

(Theoretical background to be done in practical classes)

**1. Knowing Computer:**

- Introduction to Computer
- What is a computer
- Generation of computer
- Classification of Computers
- Configurations of Computers
- Computer Software and Hardware
- Computer Peripherals

**Section - II**

(Exercise on Computer)

**2. Understanding Windows:**

- Windows Basics
- Start Windows
- Using different windows simultaneously
- Moving through windows and mouse
- Maximize/Minimize windows
- Use of help features
- Exit windows
- Starting an application
- Copy
- Move
- Delete files/ Directories/Folders
- Creating Directories/Folders
- Renaming files and directories/folders

**Word Processing Package (MS Word):**

- Basics of Word Processing
- Text Selection
- Opening Documents and Creating Documents
- Saving Documents/Quitting Documents
- Cursor control
- Printing and Replacing Text
- Spell Check Feature/Autocorrect feature
- Grammar facility
- Retrieving often used text
- Auto text character formatting
- Page formatting
- Document Enhancement: Adding, Borders and shading, Adding Headers and Footers, setting up Multiple Documents, Data source, Merging Documents,
- Using Mail merge feature for labels and envelopes: Graphics and Using Templates and wizards

**4. Making a Presentation (MS Power Point):**

- Basics
- General Features
- Creating a Presentation
- Working with slides
- Inserting images
- Video
- Audio Clips
- Indents and line spacing
- Slide animations transactions
- Manual and Automatic slide show
- Color themes, etc.

**5. Communications on Internet (e-mail messages)**

- Basics of E-mail
  - What is an Electronic mail
  - Email Addressing
- Using emails
  - Opening Email account
  - Mailbox: Inbox and Outbox
  - Creating and Sending a new Email
  - Replying to an Email message
  - Forwarding an Email message
  - Sorting and Searching Emails
- Document Collaboration /attachments
- Instant Messaging and Collaboration
- Application and features of Cloud storage (Google drive, MS one drive etc)

**Recommended Readings:**

1. Pradeep K. Sinha, Priti Sinha, "Computer fundamentals" BPB Publications, New Delhi, 2011.
2. Mandeep Handa, Virinder Singh "Windows based Computer courses" ABS Publications, Jalandhar, 2011.
3. Suresh K. Basanra, "Computer Today" Galgotia Publications, New Delhi, 2008.

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4. Ikvinderpal Singh, Baljinder Singh "Windows Based Computer Courses" Khanna Book Publications Co. (P) Ltd. 2011.







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**B.Sc. Home Science (Hons.)**  
**Semester - I**  
**Physical Education - I (Common Value Added Course)**  
**Practical**

**Credit: 2**

**Duration of Class : 4hrs/week**

**Duration of Exam: 3hrs**

**Maximum Marks: 50**

**Paper: 40**

**Internal Assessment: 10**

**Instructions to the Examiner:**

- Practical exam will be for three hours duration.
- Preparation of Practical Record
- Viva-voce to assess the theoretical knowledge.

**Course Objectives:**

- Enhancing holistic development of students.
- Acquainting with knowledge of basic techniques involved in athletic /field events.
- Orienting with the practical knowledge of techniques and skills involved in games.
- Inculcating the significance of knowledge and benefit of yoga in daily lifestyle.

**Course Content:p**

**Section-A**

1. Athletics: Brief knowledge of track and field events. Layout of Track, Short Distance Races (including relay race)
2. Field Events: Throw: Shot put-Dimension of the circle and specification of equipment.
3. Brief knowledge of Asian Games and current national records in Athletics
4. Brief knowledge of Olympic Games
5. Knowledge of prominent players of the games in Section B.

**Section-B**

1. Athletics:
  - a) Technique for start, finishing and during running in a race.
  - b) General fouls in track events.
2. Field Events: Throw: Shot put
  - a) Techniques of putting a shot
  - b) Fouls of throwing events.
3. Practice anyone from the following:
  - a) Badminton
  - b) Kho- Kho
  - c) Volleyball
  - d) Hockey
  - e) Yoga

**Recommended Readings:**

1. A Text Book of Physical Education and Sports by Atwal and Kansal.
2. Rule Book of Athletics by Amateur Athletic Federation of India.
3. Rule Book of Badminton by Badminton Federation of India.
4. Rules Book of Kho-Kho by Kho-Kho Federation of India.
5. Rule Book of Volley Ball by Volley Ball Federation of India.
6. Rule Book of Hockey by Hockey Federation of India

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**B.Sc. Home Science (Hons.)**  
**Semester-II**  
**Introduction to Family Resource Management-II (Major)**  
**Theory**

**Credit: 2**

**Duration of Class : 2hrs/week**

**Duration of Exam: 3hrs**

**Max. Marks: 50**

**Paper: 40**

**Internal Assessment: 10**

**Instructions to Examiner:**

- Question paper will have four sections.
- Examiner will set a total of nine questions comprising of two questions from each unit, and one compulsory question of short answer type covering the whole syllabus.
- Student will attempt one question from each unit and the compulsory question.
- All questions may carry equal marks, unless specified.

**Course Objectives:**

- To comprehend the concept and scope of management in the changing scenario.
- To understand the significance, types and steps of various functions of management. To understand the scientific application of the process of management in the judicious use of resources.
- To familiarize the students with the concept of human resource management.
- To develop decision making skills and managerial skills amongst students.

**Course Content:**

**Unit-I**

**1. Evolution of Management:**

- History & growth of management, Ethics in Management
- Management as a discipline in Home Science, Women in Management

**2. Management Principles & Theories:**

- Principles of Management
- Theories in Management

**Unit-II**

**3. Management Process: significance & steps**

- Planning
- Organizing

**4. Management Process: significance & steps**

- Leading/ Supervising, Staffing
- Controlling, Evaluation

**Unit-III**

**5. Motivating factors in Management:**

- Values, Goals & Standards
- Motivation theories, Factors for motivation

**6. Decision Making in Management:**

- What is decision making, types, steps in decision making
- Factors affecting decision making

**Unit-IV****7. Human Resource Management:**

- Concept, functions, roles
- Skills and Competencies

**8. Human Resource Planning:**

- Concept, need & scope
- Job design & analysis: job description, job specification

**Recommended Readings:**

1. Gross. L. H. and Crandal.E.W., 1967,. Management for Modern Families. Appleton Centurion Crafts, New York.
2. Seetharaman P; Batra S. and Mehra P 2005. An Introduction to Family Resource Management. CBS Publishers and distributors, New Delhi.
3. Nickell.P. and Dorsey. M.J. 2002 Management in Family Living 4th Edition. CBS Publishers.
4. Kaur.H., and Macnell., 1994. Theory and Practice of Home Management. Surjeet Publishers. New Delhi.
5. Mital, M., Sawhney, H. K. (2015). Family Finance and Consumer Studies. New Delhi: Elite Publishing House Pvt. Ltd.
6. Rao V.S. and Narayana P.S. (2007). Principles and Practices of Management. New Delhi: Konark Publishers Pvt. Ltd.
7. Aswathappa. K, 2008,Human Resource and Personnel Management - Text and cases, Tata McGraw-Hill Publishing Company Ltd, New Delhi.
8. Gary Dessler, 2006, Human Resource Management, 11th edition Prantice Hall of India Pvt. Ltd, New Delhi.
9. Subbaroo, R. (2007). Personnel and Human Resource Management – Text and Cases. New Delhi: Himalaya Publishing House.
10. R Wayne Mondy, Rober M. Noe. (2006). *Human Resource Management*. Pearson.

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**B.Sc. Home Science (Hons.)**  
**Semester-II**  
**Introduction to Family Resource Management-II (Major)**  
**Practical**

**Credit: 1**

**Duration of Class : 2hrs/week**

**Duration of Exam: 3hrs**

**Max. Marks: 25**

**Paper: 20**

**Internal Assessment: 05**

**Instruction to Examiner:**

- The external and internal examiners are requested to be present at the examination center before the commencement of the examination.
- Set the question papers in consultation with the internal examiner and conduct the practical examination as per the scheme.

**Course Objectives:**

- To understand the significance, types and steps of various functions of management
- To develop decision making abilities through management games.
- To gain understanding about the concept of human resource.

**Course Content:**

1. Case Study Presentation on Women in Leading Roles
2. Events Planning, Organization & Reporting: formal & informal events
3. Goal Identification & Setting: for self & family
4. Building Decision Making abilities through management games
5. Analysis of HRM through case study presentation

**Recommended Readings:**

1. Gross. L. H. and Crandal.E.W., 1967,. Management for Modern Families. Appleton Centurion Crafts, New York.
2. Seetharaman P; Batra S. and Mehra P 2005. An Introduction to Family Resource Management. CBS Publishers and distributors, New Delhi.
3. Nickell.P. and Dorsey. M.J. 2002 Management in Family Living 4th Edition. CBS Publishers.
4. Kaur.H., and Macnell., 1994. Theory and Practice of Home Management. Surjeet Publishers. New Delhi.
5. Mital, M., Sawhney, H. K. (2015). *Family Finance and Consumer Studies*. New Delhi: Elite Publishing House Pvt. Ltd.
6. Rao V.S. and Narayana P.S. (2007). *Principles and Practices of Management*. New Delhi: Konark Publishers Pvt. Ltd.
7. Varghese A.M; Ogale N.N and Srinivasan K. 2006. Home Management. New Age International Pvt. Ltd Publishers, New Delhi.

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**B.Sc. Home Science (Hons.)**  
**Semester-II**  
**Introduction to Clothing and Textiles – II (Major)**  
**Theory**

**Credit: 2**

**Duration of Class : 2hrs/week**

**Duration of Exam: 3hrs**

**Maximum Marks: 50**

**Paper: 40**

**Internal Assessment: 10**

**Instructions to examiner:**

- Each theory paper will be of three hours duration.
- Question paper will have four units.
- A total of nine questions comprising of two questions from each section and one compulsory question of short answer type covering the whole syllabus.
- Student will attempt one question from each UNIT and the compulsory question (total of five questions).
- All questions may carry equal marks, unless specified.

**Course Objectives:**

- To impart knowledge of:
  - Fibers, sources of fibers and their properties.
  - Design fundamentals, elements and principles of design.
  - Laundry and care of garments.

**Course Content:**

**Unit-I**

1. Classification of Fibers on the basis of their origin
2. Properties of Cotton and Silk Fibers
  - Physical properties
  - Chemical properties

**Unit-II**

3. Necessary equipment and methods of laundry.
4. Care and storage of garments: Cotton, Wool, Silk and Synthetic.

**Unit-III**

5. Recording of body measurement. Care to be taken while taking body measurements.
6. Different methods of developing a design- Drafting, Pattern making, Draping. Their advantages and disadvantages.

**Unit-IV**

7. Elements of Art ( in context to garment design):
  - Line
  - Form and Shape (Silhouette)
  - Color and its dimensions ( hue, value, intensity), color schemes
  - Texture
8. Principles of Design:
  - Harmony

- Proportion
- Balance
- Rhythm
- Emphasis

**Recommended Readings:**

1. Jerner G., "Dress -The Clothing Textbook", Benett Co. Inc. Peoria.
2. Ellinwood J. G., "Fashion by Design", Fairchild Book, New York.
3. Aspeland K., "The Design Process", Fairchild Books, New York
4. Vilensky, "Textile Science", CBS Publication, New Delhi, 1999.
5. Mishra S.P., "A Textbook of Fiber Science and Technology", New Age Intl., Delhi 2000.
6. Eric Oxtoby, "Spun Yarns, Technology, Structure and Applications, Wiley-InterScience, NY, 1978.
7. Corbman, "Textiles: Fiber to Fabric" McGraw Hill Kadolph, S.J, "Textiles", Tenth Edition, Dorling Kindersley, 2009.
8. Tortora, P.G., "Understanding Textiles", Mac Millan, Publishing Co, New York, 1978.
9. Hollen, N and Saddler. J, "Textiles" Mac Millan, London, 1968.

**B.Sc. Home Science (Hons.)**  
**Semester-II**  
**Introduction to Clothing and Textiles – II (Major)**  
**Practical**

**Credit: 1**

**Duration of Class : 2hrs/week**

**Duration of Exam: 3hrs**

**Maximum Marks: 25**

**Paper: 20**

**Internal Assessment: 05**

**Instructions to examiner:**

- Practical paper will be of 3 hours duration
- Question paper should cover all the topics
- Internal choice may be given in all questions

**Course Objectives:**

- To impart knowledge of:
- Sewing Machine
- Development of Design through motifs
- Layouts of motifs

**Course Contents:**

1. Stain Removal
2. Color:
  - a. Color Wheel
  - b. Color Scheme
  - c. Tints and Shades
  - d. Grey Scale
3. Basic embroidery stitches Stem, Chain, Back, Blanket, Herring Bone, Long and Short, Laizy Daisy, French knot, Bullion knot
4. Articles :Frames/Hankies/Table Napkins/Apron

**Recommended Readings:**

1. Aspelund Karl, "The Design Process", Fairchild Books New York.
2. PremlataMullick, "Textbook of Textile Design", Kalyani Publishers, 2006
3. W. Clarke, "An Introduction to Textile Printing", Butterworth and Co. Publishing Limited, 1974
4. Sulahria Diamond, "Inside Design", A department of Harper and Row Publishers Inc.,
5. Chattopadhyay k., "Handicrafts and Industrial Arts of India", Taraporevala sons & co. Pvt. Ltd. Mumbai, 1960
6. Saraf D.N, "Indian Crafts", Vikas Publishing House Pvt. Ltd. 1982
7. Naik Shailaja D, "Traditional Embroideries of India", APH Pub. Corp, New Delhi, 1996
8. Paine Sherla, "Embroidered Textiles", Thames and Hudson Ltd, 1990
9. Chattopadhyay K, "Indian Embroidery", Wiley Eastern Ltd., New Delhi, 1977
10. Marrel A, "The techniques of Indian Embroidery", B.T. Batsford, London, 1992.
11. Mrs. Savitri Pandit Traditional Embroideries of India



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**B.Sc. Home Science (Hons.)**  
**Semester-II**  
**Introduction to Foods and Nutrition - II (Minor)**  
**Theory**

**Credit: 2**

**Duration of Class : 2hrs/ week**

**Duration of Exam: 3hrs**

**Maximum Marks: 50**

**Paper: 45**

**Internal Assessment: 05**

**Instructions to Examiners:**

- Each theory paper will be of three hours duration.
- Question paper will have four sections/units. Paper setter will set a total of nine questions comprising of two questions from each section and one compulsory question of short answer type covering the whole syllabus.
- Student will attempt one question from each unit and the compulsory question (Total of five questions)
- All questions may carry equal marks, unless specified.

**Course Objectives:**

- To introduce the concept of different areas of Foods and Nutrition.
- To gain knowledge about Foods and Nutrition.
- To enable students to acquire fundamental and basic knowledge of Nutrition.

**Course Content:**

**Unit- I**

1. RDA – definition
  - Reference man and woman
  - Concept of Food Pyramid
2. Balanced Diet:
  - Definition and concept
  - Factors affecting balanced diet

**Unit- II**

3. Meal Planning
  - Definition and concept
4. Factors affecting meal planning

**Unit- III**

5. Objectives of cooking food
6. Methods of cooking – Concept , Advantages & Disadvantages
  - Dry Cooking – Roasting and Baking
  - Moist Cooking – Boiling and Steaming
  - Cooking with Oil -- Shallow Frying, Deep Frying

**Unit- IV**

7. Food safety
  - Basic concept of food adulteration
  - Basic concept of food safety law (FSSAI)
8. Basic concept of Nutritional Labeling and Packaging

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**B.Sc. Home Science (Hons.)**  
**Semester-II**  
**Introduction to Foods and Nutrition - II (Minor)**  
**Practical**

**Credit: 1**

**Duration of Class : 2hrs/ week**

**Duration of Exam: 3hrs**

**Maximum Marks: 25**

**Paper: 20**

**Internal Assessment: 05**

**Instructions to Examiner:**

- The external and internal examiners are requested to be present at the examination centre before the commencement of the examination.
- Set the question papers in consultation with the internal conduct the practical examination as per the scheme.

**Course Objectives:**

- To acquire skills in food preparation technique of food
- To use appropriate methods of cooking for preparation of specific food products.
- To observe and understand the principals involved in preparation of different foodstuffs.
- To understand the concept of food adulteration.

**Course Content:**

1. Food preparation according to a general balanced diet – Poshtik Thali
2. Detecting adulteration in foodstuffs – ghee, honey, coffee, milk, haldi
3. Preparation of recipes using different methods of cooking (Baking, Roasting, Steaming, Boiling, Shallow Frying, Deep Frying)
4. Evaluation and interpretation of different nutritional food labels

**Recommended Readings:**

1. Discovering Nutrition, Paul Insil, Don Ross, Kimberley McMahon, Melisa Bernstein, Jones and Bartlett Learning, 4th Edition, 2012.
2. Food Hygiene and Sanitation, SunetraRoday, Tata McGraw-Hill Education Private Limited, 2011.
3. Food Science and Nutrition, SunetraRoday, Oxford University Press, 2008.
4. Food Science, B. Srilakshmi, New Age International Publishers, 2012.
5. Foods Facts and Principles, N. ShakuntalaManay, M. Shadaksharaswamy, New Age Publishers, 2013.
6. Fundamentals of Meal Management, Margaret McWilliams, Pearson, 2008.
7. Textbook of Nutrition and Dietetics, KumudKhanna, Elite Publishing House Pvt Ltd, 2008.
8. Nutrition and Dietetics, Shubhangini A Joshi, Tata McGraw-Hill Publishing Company Limited, 2009.
9. Basic Food Preparation: A Complete manual, Faculty of Lady Irwin College, Orient Longman publishers, 2008.

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**B.Sc. Home Science (Hons.)**  
**Semester-II**  
**Introduction to Human Development – II (Minor)**  
**Theory**

**Credit: 2**

**Duration of Class : 2hrs/week**

**Duration of Exam: 3 hrs**

**Maximum Marks: 50**

**Paper: 40**

**Internal Assessment: 10**

**Instructions to Examiner:**

- Each theory paper will be of **three hours** duration.
- The question paper will have **four** sections.
- A total of nine questions comprising of two questions from each unit and one compulsory question of short answer type covering the whole syllabus will be set.
- All questions carry equal marks unless specified.
- Students will be expected to attempt one questions from each unit and the compulsory question.

**Course Objectives:**

- To become acquainted with the developmental stages from birth to old age
- To develop awareness of important aspects of development during the whole lifespan.
- To understand the characteristics of each developmental stage

**Course Content:**

**Unit I**

1. Infancy –Definition and Milestones of development
2. Brief overview of Physical and Motor development, Reflexes in infancy

**Unit II**

3. Early and late childhood, – Definition, Milestones of development
4. Brief overview of Socio –emotional and Language development

**Unit III**

5. Adolescence – Definition of Early and late Adolescence. Characteristics of Adolescents
6. Brief overview of Physical, Social and Emotional development in Adolescence

**Unit IV**

7. Adulthood – Definition of Early and Middle Adulthood. Characteristics of Early and Middle Adulthood. Brief overview of Psycho-Social relationships during Adulthood.
8. Old age – Definition, characteristics of Old age.

**Recommended Reading:**

1. Berk, L.E (1996). Child Development. New Delhi: Prentice Hall
2. Craig, G. (1999). Human Development. NJ: Prentice Hall.
3. Cole, M., & Cole, S. (1995). The Development of children. NY: Freeman & Co.
4. Dacey, J.S & Travers, J.F. (2000). Human Development across life span, Mc Graw Hill, New York.
5. Papalia, D.E (1978). Human Development. NY: McGraw Hill Book Company.

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**B.Sc. Home Science (Hons.)**  
**Semester-II**  
**Introduction to Human Development -II (Minor)**  
**Practical**

**Credit: 1**

**Duration of Class : 2hrs/week**

**Duration of Exam: 3 hrs**

**Maximum Marks: 25**

**Paper: 20**

**Internal Assessment: 05**

**Instructions to Examiner:**

- Each practical paper will be of three hours duration
- The question paper should cover entire syllabus.
- The file work and viva voce will be of five marks each (Total = 10 marks).

**Course Objectives:**

- To introduce methods of studying human development.
- To acquaint students with issues related to each developmental stage
- To present the applied perspective of human development

**Course Content:**

1. Preparation of file of collection of traditional practices and rituals at the time of birth of a child.
2. Prepare an educational toy for the age group -young childhood.
3. Prepare a display related to issues concerning adolescence.
4. Interview method. Interview an Adult /Elderly regarding their psychosocial relationships.

**Recommended Reading:**

1. Berk, L.E (1996). Child Development . New Delhi: Prentice Hall
2. Craig, G.(1999). Human Development . NJ: Prentice Hall.
3. Cole,M., &Cole,S. (1995). The Development of children. NY: Freeman &Co.
4. Dacey, J.S & Travers, J.F. (2000). Human Development across life span, Mc Graw Hill, New York.
5. Papalia, D.E (1978). Human Development .NY:McGraw Hill Book Company.

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**B.Sc. Home Science (Hons.)**  
**Semester-II**  
**Economics of Business Development (Inter-Disciplinary Course)**  
**Theory**

**Credit: 2**

**Duration of Class : 2hrs/week**

**Duration of Exam: 3hrs**

**Maximum Marks: 50**

**Paper: 40**

**Internal Assessment: 10**

**Instructions to the Examiner:**

- Each theory paper will be of three hours duration.
- Question paper will have four units. Paper setter will set a total of nine questions comprising of two questions from each section and one compulsory question of short answer type covering the whole syllabus.
- Student will attempt one question from each unit and the compulsory question (Total of five questions)
- All questions may carry equal marks, unless specified.

**Course Objectives:**

- To prepare the platform where the students view entrepreneurship and self-employment as a desirable and feasible career option.
- Stimulating the potential to develop entrepreneurial orientation through innovation and creativity.
- To orient the students with basic principles involved in starting and managing a new enterprise.

**Course Content:**

**Unit - I**

1. Fundamentals of Business Development: Meaning, Definitions, Characteristics, objectives- Social, Economic Human and National.
2. Entrepreneurship: Entrepreneurship Development in India, Entrepreneur- characteristics competencies, Types of Entrepreneurship: Social, Rural entrepreneurship and challenges faced by entrepreneurs

**Unit - II**

3. Business Planning and Launching, Business idea generation, Do's and Don'ts of making a business plan, Planning Commission guidelines of making business plan.
4. Pitching a business Idea How to pitch a business idea to investors. Characteristics of good entrepreneurial business ideas, Sources of getting a business idea, Business vs Start-ups.

**Unit - III**

5. Business Finance: meaning and sources of funding: Debt funding and Equity funding. Intellectual Property Rights, Copy Rights, Trademarks, Patents and Trade Secrets.
6. Types of Business Enterprises; Micro, Small and Medium Enterprises; MSME Act 2005.

**Unit - IV**

7. Marketing Management Understanding markets and marketing: types, functions & marketing mix. Digital Marketing and its role in Business development.
8. Role of Incubators, Accelerators and co-working facilities in development of business.



**Recommended Readings:**

1. Gupta C.B and Srinivasan N.P, "Entrepreneurial Development" Sultan Chand and Sons, New Delhi
2. Khanna S.S, "Entrepreneurship Development" Sultan Chand and Sons, New Delhi
3. Patel, V. G., "The Seven Business Crises and How to Beat Them" Tata-McGraw, New Delhi, 1995.
4. SIDBI Report on Small Scale Industries Sector (Latest Editions)
5. Taneja, Satish and Gupta, S.L, " Entrepreneurship Development-New Venture Creating" Galgotia Publishing House, New Delhi, Latest Edition
6. Arora Renu and S.K Sood, "Fundamentals of entrepreneurship and Small business" Kalyani publishers





**B.Sc. Home Science (Hons.)**  
**Semester-II**  
**Economics of Business Development (Inter-Disciplinary Course)**  
**Practical**

**Credit: 1**

**Duration of Class : 2hrs/week**

**Duration of Exam: 3hrs**

**Maximum Marks: 25**

**Paper: 20**

**Internal Assessment: 05**

**Course Objectives:**


- To familiarize the students with the process and skills of creation and management of enterprise.
- To plan, use, monitor and control resources optimally and economically.
- To help the student to learn nitty-gritty of running a business.

**Course Contents:**

1. Generating business idea and developing business plan. The students will be advised to develop a business plan with use of digital marketing platform and exhibit and put up exhibition/stall within /outside the institution to demonstrate creative/innovative skills of setting up of business.
2. Developing a structured instrument (questionnaire) for conducting first hand survey of the various aspects of respective enterprise including the process of setting up of business. SWOC analysis and suggesting feasible measures for policy implementation.
3. Assignments/ presentation on opportunity scouting and idea generation. The contents of the assignment should be focused on the source of institutional finance to the business idea (including case analysis of any one financial institution)

**Recommended Readings:**

1. Gupta C.B and Srinivisan N.P, "Entrepreneurial Development" Sultan Chand and Sons, New Delhi
2. Khanna S.S, "Entrepreneurship Development" Sultan Chand and Sons, New Delhi
3. Patel, V. G., "The Seven Business Crises and How to Beat Them" Tata-McGraw, New Delhi, 1995.
4. SIDBI Report on Small Scale Industries Sector (Latest Editions)
5. Taneja, Satish and Gupta, S.L, " Entrepreneurship Development-New Venture Creating" Galgotia Publishing House, New Delhi, Latest Edition
6. Arora Renu and S.K Sood, "Fundamentals of entrepreneurship and Small business" Kalyani publishers.







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**Under Graduate Programme in Home Science (Semester II)**  
**Ability Enhancement Course**  
**English Communication Skills-II**  
**(Practical)**

**Credit- 2**

**Duration of Class-4 hrs/week**

**Duration of Exam- 3hrs**

**Max. Marks- 50**

**Paper- 40**

**Internal Assessment- 10**

**Objectives:** To equip learners with language proficiency in Business/work situations particularly in spoken interaction; to make learners aware of the special features of format and style of informal communication through various modes; to equip learners with techniques of written communication in business situations; to expand vocabulary and develop reading comprehension of material related to business.

**Instructions for Examiner:**

The examiner shall consider annual assignment of the student, practical file, take practical exam & viva voce based on syllabus for evaluating the students performance in the examination.

**Unit-I**

**1. Writing Skills:**

- a. Resume Writing
- b. Report Writing (Magazine and Newspaper Report)
- c. Letter Writing (Formal and Informal Letters)
- d. Writing Articles for Wall magazines/ Newspapers/Journals

**Unit-II**

**2. Listening Skills**

- a. The Listening Process, Types of Listening
- b. Essentials of Listening
- c. Importance and Art of developing Listening Habits

**Unit-III**

**3. Developing Conversational Ability**

- a. Formal Interviews
- b. Making enquiries
- c. Making requests and seeking permissions
- d. Expressing sympathy and offering condolences
- e. Congratulating people and responding to congratulations



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#### Unit-IV

#### 4. Language and Literary Skills

- a. Figures of speech: Simile, Metaphor, Irony, Personification, Hyperbole, Alliteration.(Identifying the same in a given passage)
- b. Idioms and Phrases
- c. One word substitution

#### Suggested Readings:

1. Blundell Oxford's Middle Miss (1985). *English for Business and Commercial World*, Middle Oxford University Press.
2. Hanner, M.S and G.C.Wilson (1989). *Communication in Business and Professional Setting* M.C.Grawhil, New York.
3. *Fluency in English Part II* (2006). Oxford University Press, Delhi.
4. *Interact: A Course in Communicative English*, Cambridge University Press.
5. Veerendra Mishra (2020). *English Language Skills: A Practical Approach*, Cambridge University Press.
6. Mohan, Krishna (2000). *Developing Communication Skills*. Macmillan Indian Ltd
7. Hewings, Hartin (1999). *Advanced English Grammar*. Cambridge University Press.
8. Murphy Raymond (1990). *Essential English Grammar*, Cambridge University Press.



**B.Sc. Home Science (Hons.)  
Semester-II  
Food Safety & Preservation - II (Skill Enhancement Course)  
Practical**

**Credit: 3  
Duration of Class : 6hrs/ week**

**Maximum Marks: 75  
Paper: 60**

**Duration of Exam: 3hrs**

**Internal Assessment: 15**

**Instructions to Examiner:**

- The external and internal examiners are requested to be present at the examination centre before the commencement of the examination.
- Set the question papers in consultation with the internal examiner and conduct the practical examination as per the syllabus.

**Course Objectives:**

- To introduce the different areas of food preservation.
- To acquire knowledge of food preservation and preservation techniques.
- To know the importance of basic principles of food preservation.

**Course Content:**

- 1) Preservation by low temperature:
  - Chilling
  - Refrigeration
  - Freezing
- 2) Preservation of food products using class I and class II Preservatives
  - Preparation and preservation of product by using Salt, sugar and oil as preservative
  - Preparation and preservation of product by using Chemical Preservative
- 3) Proximate analysis of food samples:
  - Total protein
  - Total carbohydrate
  - Total fat
  - Moisture content
  - Ash
  - Fiber
- 4) Microbial analysis of prepared preserved foods ( Standard Plate Count)
- 5) HACCP principles and application in food safety.
- 6) Visit to observe different techniques of food preservation unit/drying unit

**Recommended Readings:**

1. Kalila M and Sood S (2019). Food Preservation and processing. Kalyani Publications.
2. Adom MR and Moss MO (2008). Food Microbiology. Royal Society of Chemistry Publication.
3. James M (2000). Modern Food Microbiology. AN ASPEN PUBLICATION© Aspen Publishers, Inc. Gaithersburg, Maryland

**B.Sc. Home Science (Hons.)**  
**Semester-II**  
**Textile Printing (Skill Enhancement Course)**  
**Practical**

**Credit: 3**

**Duration of Class : 6hrs/ week**

**Maximum Marks: 75**

**Paper: 60**

**Duration of Exam: 3hrs**

**Internal Assessment: 15**

**Instructions to examiner:**

- Practical paper will be of 3 hours duration
- Question paper should cover all the topics
- Internal choice may be given in all questions

**Course Objectives:**

- To enable students to develop practical skills of textile printing and its various techniques

**Course Content:**

1. Block Printing :
  - Single and Double Colored
  - Different Layouts-Central, Corner, Border and All over
2. Stencil Printing :
  - Preparation of Stencil: Positive and Negative stencils
  - Techniques of stencil printing: Spray, Dabbing, Paint Brush, Dry brush, Sponge and Ear Bud.
3. Hand painting
  - Techniques of Fabric Painting : Wet Brush Technique, Dry Brush Technique, Tipping, Dot work, Wet on wet
  - Different strokes like – comma stroke, Chisel stroke, Flat comma, leaf stroke, S stroke, Tear drop, Line work and marbling

**NOTE:** Preparation of any one article using above techniques

Scarf/Cushion cover (set of two)/Tote bag (Jute bag for printing)/T-shirt painting

**Recommended Readings:**

1. Shenai, V.A, "Technology of Textile Processing, Technology of Printing (3rd edition), Sewak Publications, Bombay 1998.
2. Shenai VA "Technology of Textile Processing, Technology of dyeing (4th edition), Sewak Publications, Bombay 1998.
3. Textiles by Hollen Saddler- Macmillian Publishing Company, New York
4. Understanding Textiles By P S Tortora-prentice Hall Inc., New Jersey

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**B.Sc. Home Science (Hons.)**  
**Semester-II**  
**Nanny Care – II (Skill Enhancement Course)**  
**Practical**

**Credit: 3**

**Duration of Class : 6hrs/ week**

**Maximum Marks: 75**

**Paper: 60**

**Duration of Exam: 3hrs**

**Internal Assessment: 15**

**Instructions to examiner:**

- Each practical paper will be of three hours duration
- The question paper should cover entire syllabus.
- The file work and viva voce will be of five marks each (total = 10 marks).

**Course Objectives:**

- Developing functional skills by on hand experiences in practicum by designing activities and creating environment for holistic development of the child
- Understanding economics and trends of new functional things in child care available in the market.
- Developing skills to keep the child safe and have first aid orientation to handle any emergencies.

**Course Content:**

1. Use of Growth monitoring Chart. Demonstration of the anthropometric measurements with standardized norms.
  - Height
  - Weight
  - Mid- arm circumference
  - Head circumference
2. Interviewing young mothers on inculcating proper toilet training practices, self-help skills and safety measures adopted at home.
3. Planning nutritious recipes for young children.
4. Evaluation and assessment of pre-school children using any one tool.
5. Developing weekly plans along with the list of activities and learning materials. Write a report on it.
6. Visit and make report of any one child welfare institutions catering to non-formal pre-school education (balwadis, anganwadis, creches, etc) and one child welfare institution catering to special education under ECCE.
7. Conducting a market survey on the educational toys and literature available for Pre-school children.
8. Understanding techniques of interacting with the child and make a report
  - Eye-contact
  - Jingles
  - Lullaby's
  - Rhymes

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- Story telling

**Recommended Readings:**

1. Young, D.N., Jean, E. & Mead, A.E. (2019). From Cradle to Classroom: A guide to special education for young children. Vibrance Press.
2. Singh, M. (2015). The Art and Science of baby and Child Care: A Comprehensive book on Parenting.
3. Frankel, J. & Hobart, C. (2001). Nannyng-A Guide to Good Practice, Oxford.
4. Merchant, A.M. (2003) The Nanny Textbook, I Universe, New Delhi
5. Carton, S & Myers, C. (2013). The Nanny Book: The Smart Parent guide to Hiring, Firing and Every sticky situation in between. Macmillan Publishers, San Francisco.
6. Elizabeth, K.E. & Golden M. (2022) Nutrition and Child Development. ISBN 9788181915382

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**B.Sc. Home Science (Hons.)**  
**Semester-II**  
**Exterior Space Designing (Skill Enhancement Course)**  
**Practical**

**Credit: 3**

**Duration of Class : 6hrs/ week**

**Maximum Marks: 75**

**Paper: 60**

**Duration of Exam: 3hrs**

**Internal Assessment: 15**

**Instruction to Examiner:**

- The external and internal examiners are requested to be present at the examination centre before the commencement of the examination.
- Set the question papers in consultation with the internal examiner and conduct the practical examination as per the syllabus.

**Course Objectives:**

- To get an overview about Exterior Space Designing and the latest trends in the field.
- To develop an understanding about the basics of designing and its application in exterior spaces.
- To understand the concept and applications of colors in exterior spaces.
- To learn the skills of making exterior spaces aesthetically beautiful and pleasing.

**Course Content:**

1. Worksheets on Types of Design: Structural and Decorative Designs.
2. Worksheet on Color Wheel.
3. Worksheets on different Color Schemes.
4. Demonstration on Mini Garden/ Terrarium.
5. Demonstration on Rangoli Making using eco-friendly materials.
6. Case Study Report/ Portfolio on Exteriors of a Café/ Restaurant and Hotel/ Resort.

**References:**

1. Seetharaman P. and Pannu P. 2012. Interior Design and Decoration. CBS Publishers and Distributors, New Delhi.
2. Rao. M. P. 2012 Interior Design - Principles and Practice, Standard Publisher Distributor, Delhi.
3. Veena G. and et. all Introduction to Interior Design & Decoration, Dominant Publishers and Distributors, New Delhi.

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**B.Sc. Home Science (Hons.)**  
**Semester-II**  
**Mass Communication and Journalism – II (Skill Enhancement Course)**  
**Practical**

**Credit: 3**

**Duration of Class : 6hrs/week**

**Duration of Exam: 3hrs**

**Max. Marks: 75**

**Paper: 60**

**Internal Assessment: 15**

**Instructions to Examiner:**

- Practical paper will be of three hours duration.
- Practical exam will be conducted on the basis of Assignments, File Work and Viva-Voce.

**Course Objectives:**

- To gain understanding of various communication systems.
- To appreciate nuances of various communication transactions for effective communication.
- To gain insight into the range and scope of traditional media, mass media, ICTs and New Media especially for social change.
- To introduce the students to the profession of Journalism

**Course Content:**

1. Conducting Mock Interviews
2. Vox Pop
3. Announcements
4. Anchoring
5. Writing Report of Events
6. Writing Press Releases
7. Writing Headlines for different news items
8. Creating leads for different news items
9. Creating and maintaining blogs
10. Writing TV news

**Recommended Readings:**

1. Dhama, O.P. Bhatnagar, O.P. (1985). *Education and Communication for development* (Second Edition). Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
2. Kumar, K. J. (2000). *Mass communication in India*. New Delhi: Jaico Publishing House.
3. De Bono, E. (2007). *How to Have Creative Ideas*. Random House
4. Ganaratne Shelton. (2000). *Handbook of the media*, Sage Publication
5. Kohli Vanita, (2003). *The Indian Media Business*, Sage Publication
6. Ludwig, Mark D. (2005). *Modern News Editing*. Willy Blackwell, New York.
7. McChesney Robert W. (2004). *The Problem of the Media*. Monthly Review Press.
8. Meera, R. (2009). *Feature Writing*. New Delhi: PHI Learning Pvt. Ltd.
9. Om Gupta, (2006). *Encyclopaedia of Journalism and Mass Communication*. Gyan Books Pvt. Ltd. ND.

**B.Sc. Home Science (Hons.)**  
**Semester-II**  
**Basics of Computer - II (Common Value Added Course)**  
**Practical**

**Credit: 2**

**Duration of Class : 4hrs/week**

**Duration of Exam: 3hrs**

**Maximum Marks: 50**

**Paper: 40**

**Internal Assessment: 10**

**Instructions to Examiner:**

- The external and internal examiners are requested to be present at the examination centre before the commencement of the examination.
- Set the question papers in consultation with the internal examiner and conduct the practical examination as per the syllabus.

**Course Objectives:**

- To impart basic computer knowledge to students.
- To enable students to concept of fundamentals and its applications.
- After completing the course the incumbent is able to the use the computer for basic purposes of preparing his personnel/business letters, viewing information on internet (the web), sending mails, etc.

**Course Content:**

**Section-I**

**(Theoretical background to be done in practical classes)**

1. Basics of Computer Memory (Primary and Secondary Memory)
2. Secondary storage media devices
3. Operating System(OS)
  - Introduction
  - Function performed by an OS
  - Types of OS
  - Brief Working of OS
4. Technologies involved in Internet
  - WWW
  - Elements of WWW
  - Client Systems
  - Server computers
  - Websites
  - Web Browsers
  - Hyperlink
  - Hypertext/Hypermedia
  - Configuration and applications of Internet
  - Bluetooth



- Wi-Fi
- Search Engines

**Section –II**  
**(Exercise on Computer)**

**1. Spreadsheet Package(MS-Excel):**

- Worksheet Basics
- Data Entry in Cells: Entry of numbers, text and formulae
- Moving data in a worksheet
- Moving around in a worksheet
- Selecting Data Range
- Using the interface (Toolbars, Menus) Editing Basics
- Working with workbooks
- Saving and Quitting
- Cell referencing
- Formatting and Calculations: Calculations and worksheets
- Working with Formulae
- Efficient Data Display with Data formatting (number formatting, data formatting, etc.)
- Working with Ranges
- Worksheet Printing
- Working with Graphs and Charts:
  - Adding/Formatting Text Data with Auto format
  - Creating Embedded Chart using chart wizard, sizing and moving parts
  - Updating charts
  - Changing chart types
  - Creating separate charts
  - Chart wizard
  - Adding Titles
  - Legends
  - Gridlines
  - Printing Charts
- Database Management
  - Finding records with Data form
  - Adding/Deleting Records
  - Filtering Records in a worksheet
- Functions and Macro
  - Worksheet with worksheet function using function-wizard
  - Creating Macros
  - Record Macros
  - Running Macros
  - Assigning Macros to Buttons
- Multiple worksheet and scanners.

**Recommended Readings:**

1. Pradeep K. Sinha, Priti Sinha, "Computer fundamentals" BPB Publications, New Delhi, 2011.

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2. Mandeep Handa, Virinder Singh "Windows based Computer courses" ABS Publications, Jalandhar, 2011.
3. Suresh K. Basanra, "Computer Today" Galgotia Publications, New Delhi, 2008.
4. Ikvinderpal Singh, Baljinder Singh "Windows Based Computer Courses" Khanna Book Publications Co. (P) Ltd. 2011.



**B.Sc. Home Science (Hons.)**  
**Semester-II**  
**Music (Vocal) and Dance (Kathak) - II (Common Value Added Course)**  
**Practical**

**Credit: 2**

**Duration of Class: 4hrs/week**

**Duration of Exam: 3hrs**

**Max. Marks: 50**

**Paper: 40**

**Internal Assessment: 10**

**Instructions to Examiner:**

- The examiner shall consider, music and dance practical file, practical based in syllabus and viva-voce for marking the students' performance.

**Course Objectives:**

- Wholesome development of an individual.
- Introduction of swara, raga, taal and alankars.
- To develop interest in Classical Music and Dance.

**Course Content:**

- 1) One Drut Khayal in each of the following Ragas with Alaps and Tanas- Yaman, Kafi.
- 2) Ability to recite bols of the talas prescribed in the Course on hand- Ek Tal, Kehrwaa.
- 3) Ability to play on Harmonium at least three alankars based on Shudh and Vikrit Swaras and sing along with it.
- 4) Jhaptal:
  - a. Tatkar in Ekgun, Dugun, and Chaugun Layakaries.
  - b. Tora-II
  - c. Amad-I
  - d. Paran-I
  - e. Chakardar Paran-I
- 5) Practical Knowledge of Samyukta Mudras.

**Recommended Readings:**

- |                                       |                                    |
|---------------------------------------|------------------------------------|
| • Sangeet Bodh                        | : Paranjpe, Shartchandra Shridhar. |
| • Sangeet Shastra Vigyan              | : Panna Lal Madan.                 |
| • Sangeet Kala ka Itihas              | : Panna Lal Madan.                 |
| • Sangeet Sar Part (I)                | : Mrs. Veena Mankaran.             |
| • Raga Vigyan, Part I to IV           | : Pt. V.N. Patwardhan.             |
| • Hamare Sangeet Ratan                | : Sangeet Karayalaya, Hathras.     |
| • Sangeetanjali Part I to IV          | : Pt. Onkar Nath Thakur.           |
| • Kramik Pustak Mallika Part I to III | : Pt. V.N. Bhatkhande.             |
| • Raag Parichay Part I, II, III       | : Sh. H.C. Srivastav.              |
| • Sangeet Kaumudi Part II             | : V.S. Nigam.                      |
| • Sangeet Shastr Darpan Part II       | : Shanti Goverdhan.                |
| • Kathak Nritya Shiksha Part-I        | : Puru Dadhich                     |
| • Kathak Nritya Shiksha Part-II       | : Puru Dadhich                     |





**B.Sc. Home Science (Hons.)**  
**Semester-II**  
**Physical Education - II (Common Value Added Course)**  
**Practical**

**Credit: 2**

**Duration of Class: 4hrs/week**

**Duration of Exam: 3hrs**

**Maximum Marks: 50**

**Paper: 40**

**Internal Assessment: 10**

**Instructions to the Examiner:**

- Practical exam will be for three hours duration.
- Preparation of Practical Record
- Viva-voce to assess the theoretical knowledge.

**Course Objectives:**

- Enhancing holistic development of students.
- Acquainting with knowledge of basic techniques involved in athletic /field events.
- Orienting with the practical knowledge of techniques and skills involved in games.
- Inculcating the significance of knowledge and benefit of yoga in daily lifestyle.

**Course Content:**

**Section-A**

1. Athletics: Brief knowledge of track and field events. Layout and marking of Track, Middle Distance Races
2. Field Events: Throw: Discus Throw-Dimension of the circle and specification of equipment.
3. Olympic records and World records in Athletic events.
4. Knowledge of prominent players of the games in Section B.
5. Brief knowledge of Awards and Honors in Various Games.

**Section-B**

1. Athletics:
  - Technique for start, finishing and during running in a race.
  - General fouls in track events.
2. Field Events: Throw: Discus Throw
  - Techniques of putting a Discus
3. Fouls of throwing events.
4. Practice anyone from the following:
  - Badminton
  - Kho- Kho
  - Volleyball
  - Hockey
  - Yoga

**Recommended Readings:**

1. A Text Book of Physical Education and Sports by Atwal and Kansal.
2. Rule Book of Athletics by Amateur Athletic Federation of India.
3. Rule Book of Badminton by Badminton Federation of India.
4. Rules Book of Kho-Kho by Kho-Kho Federation of India.
5. Rule Book of Volley Ball by Volley Ball Federation of India.
6. Rule Book of Hockey by Hockey Federation of India.

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Appendix to  
Stem No LXV

**B.A./B.Sc. (General) - MAJOR in Mathematics- Session 2023-24**  
**Syllabus For 1st Sem (as per NEP-2020)**

**MAT-MA-101: Paper-I: CALCULUS – I**

**Credits = 3**

**Max. Marks : 60**

**Internal Assessment : 15**

**Time : 3 hours**

- Note:**
1. The syllabus has been split into two Units: Unit-I and Unit-II. The examiner will set in total Nine questions including a compulsory question. The compulsory question (Question No.1) will contain 6 parts covering the entire syllabus. Four questions will be set from each Unit.
  2. A student will be required to attempt five questions in all, selecting two questions from each Unit and the compulsory question. Each question will carry equal marks.
  3. The teaching time shall be three periods (1 hour each) per week including tutorial.

**Objective:** The main goal of this course is to deliver basics of Limits, Continuity and Differentiability of functions in one variable as well as in two variables. The course also covers the basic concepts of curve tracing and vector calculus.

**Learning Outcomes:** This course will enable students to understand the concepts of Limits and continuity. Students will be able to understand the applications of differential and vector calculus. The course will enable students to determine derivatives of two variable functions, extreme values and understand the concepts of tangents, normals, asymptotes and curve tracing..

**UNIT-I**

$\epsilon$ - $\delta$  definition of limit, one-sided limit, limits involving infinity, continuity, types of discontinuities, recall derivative of function, tangents and normal at a point, Rolle's theorem, Lagrange's theorem and Cauchy's mean value theorem, convexity and concavity, point of inflexion, asymptotes, tracing of curves (Cartesian only)

**UNIT -II**

Polar Coordinates, Curve tracing in Polar coordinates. Limits and continuity for functions of two variables, partial derivatives, the chain rule, extreme values and saddle points, vector differentiation, gradient, divergence, curl, directional derivative, tangent planes, properties and applications.

**Practical Work (Maybe considered for internal assessment):** In pursual of the essence of NEP2020, the following Mathematics Practicals can be performed by students. The Practicals can be performed using Math based Free and Open Source Softwares such as Mathematica/ MATLAB/ Scilab/ Maxima/ Maple/SageMath etc.

- 1) Plotting of graphs of Greatest Integer Function  $[x]$ ,  $\sqrt{ax + b}$ ,  $|ax + b|$ ,

$e^{(ax+b)}$ ,  $\log(ax + b)$ ,  $\sin(ax+b)$ ,  $|\sin(ax+b)|$ ,  $\cos(ax+b)$ ,  $|\cos(ax+b)|$  and observing the variation in graphs by changing values of the constants  $a$  and  $b$ .

- 2) To find point of inflexion of a function of one variable
- 3) To find Max/Min of a function of one variable
- 4) To find Concavity/convexity of cartesian curves

### REFERENCES

1. G. B. THOMAS, M. D. WEIR and J. R. HASS, THOMAS, *Thomas' Calculus*, (12<sup>th</sup> Edition), Pearson, 2014.
2. J. D. MURRAY and M. R. SPIEGEL, *Theory and Problems of Advanced Calculus*, Schaum's Outline Series, Schaum Publishing Co., New York.
3. S. NARAYAN and P. K. MITTAL, *Differential Calculus*, Ed 2006, S. Chand & Co., New Delhi.
4. M. J. STRAUSS, G. L. BRADLEY and K. J. SMITH, *Calculus*, (3<sup>rd</sup> Edition), Pearson Education, 2007.

## MAT-MA-102: Paper-II : ALGEBRA

Credits = 3

Max. Marks : 60

Internal Assessment : 15

Time : 3 hours

- Note:**
1. The syllabus has been split into two Units: Unit-I and Unit-II. The examiner will set in total Nine questions including a compulsory question. The compulsory question (Question No.1) will contain 6 parts covering the entire syllabus. Four questions will be set from each Unit.
  2. A student will be required to attempt five questions in all, selecting two questions from each Unit and the compulsory question. Each question will carry equal marks.
  3. The teaching time shall be three periods (1 hour each) per week including tutorial.

**Objective:** The course introduces the basics of linear algebra. It aims at understanding the multiplicity of roots and introduces the basic tools of solving cubic and bi-quadratic equations. The course introduces the concept of eigen values and eigen vectors of a matrix. The objective is to understand nature of solution of a linear system of equations.

**Learning Outcomes:** This course will enable students to identify multiple roots and solve cubic and bi-quadratic equations. The students will be able to determine the rank of a matrix, eigen values, eigen vectors and solve linear system of equations using matrices.

### UNIT-I

Euclid's algorithm, synthetic division, roots and their multiplicity. Complex roots of real polynomials occur in conjugate pairs with same multiplicity. Relation between roots and coefficients. Transformation of equations.

Solution of cubic and bi-quadratic equations, Cardan's method of solving a cubic, discriminant and nature of roots of real cubic. Descartes's and Ferrari's method for a bi-quadratic.

## UNIT-II

Hermitian and Skew-Hermitian matrices, linear dependence of row and column vectors, row rank, column rank and rank of a matrix and their equivalence. Theorems on consistency of a system of linear equations (both homogeneous and non-homogeneous). Eigen-values, eigen-vectors and characteristic equation of a matrix, Cayley-Hamilton theorem and its use in finding inverse of a matrix. Diagonalization.

**Practical Work (Maybe considered for internal assessment):** In pursual of the essence of NEP2020, the following Mathematics Practicals can be performed by students. The Practicals can be performed using Math based Free and Open Source Softwares such as Mathematica/ MATLAB/ Scilab/ Maxima/ Maple/SageMath etc.

- 1) To find inverse and rank of a square matrix.
- 2) To find solution of a linear system of equation.
- 3) To find eigen values of a square matrix.
- 4) To solve cubic and bi-quadratic equations.

## REFERENCES

1. S. R. KNIGHT and H. S. HALL, *Higher Algebra*, H.M. Publications, 1994.
2. S. NARAYAN and P. K. MITTAL, *A Text Book of Matrices*, Ed 2007, S. Chand & Co., New Delhi.
3. CHANDRIKA PRASAD, *Text Book on Algebra and Theory of Equations*, Pothishala Private Ltd. Allahabad.
4. V. SAHAI and V. BIST, *Linear Algebra*, 2<sup>nd</sup> Edition, Narosa Publishing House, 2013.
5. A. KUROSH, *Higher Algebra*, MIR Moscow, 1982.

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**B.A./B.Sc. (General) - MAJOR in Mathematics- Session 2023-24**  
**Syllabus for 2<sup>nd</sup> semester (as per NEP-2020)**

**MAT-MA-201: Paper-I: CALCULUS – II**

**Credits = 3**

**Max. Marks: 60**

**Internal Assessment :15**

**Time : 3 hours**

- Note:*
1. The syllabus has been split into two Units: Unit-I and Unit-II. The examiner will set in total Nine questions including a compulsory question. The compulsory question (Question No.1) will contain 6 parts covering the entire syllabus. Four questions will be set from each Unit.
  2. A student will be required to attempt five questions in all, selecting two questions from each Unit and the compulsory question. Each question will carry equal marks.
  3. The teaching time shall be three periods (1 hour each) per week including tutorial.

**Objective:** The aim of this course is to introduce the basic concepts of sequences and series and integral calculus. Understanding the techniques of testing the convergence of an infinite series. The course covers the application of integral calculus and develops the concepts of quadrature and rectification of curves.

**Learning Outcomes:** This course will enable students to determine indeterminate forms, understand the basics of convergence of sequences and infinite series. Students will be able to determine area bounded by curves, surface area and volume of solids of revolution of curves and understand rectification of curves.

**UNIT-I**

Indeterminate Forms ( $\frac{0}{0}, \frac{\infty}{\infty}, \infty \cdot 0, \infty - \infty$ ) and L'Hospital's Rule(Statement only)

Definition of a Sequence and it's convergence.

Definition of Infinite series and it's Convergence/Divergence, p-Test, Comparison test, Cauchy's integral test, Cauchy's Root test, Ratio test (Statements Only).

Alternating series, Leibnitz's theorem(Statement only), Absolute and conditional convergence.

**UNIT-II**

Integration as a limit of sum, Definite Integrals, Properties of definite integrals, Quadrature, Area between curves, Length of a plane curve: Rectification, Area of the Surface of solids of revolution, volumes of solids of revolution (Cartesian co-ordinates only)

**Practical Work (Maybe considered for internal assessment):** In pursual of the essence of NEP2020, the following Mathematics Practicals can be performed by students. The Practicals can be performed using Math based Free and Open Source Softwares such as Mathematica/ MATLAB/ Scilab/ Maxima/ Maple/SageMath etc.

1. Finding the definite integrals of functions
2. Finding the indefinite integrals of functions
3. Finding length of arc of 2-d curves.
4. Obtaining surface of revolution of curves

#### REFERENCES

5. R. G. BERTLE and D.R. SHERBERT: *Introduction to Real Analysis* (Fourth Edition), Wiley Inda Edition.
6. G. B. THOMAS, M. D. WEIR and J. R. HASS, THOMAS, *Thomas Calculus*, (12<sup>th</sup> Edition), Pearson, 2014.
7. J. D. MURRAY and M. R. SPIEGEL, *Theory and Problems of Advanced Calculus*, Schaum's Outline Series, Schaum Publishing Co., New York.
8. G. B. THOMAS and R.L.FINNEY: *Calculus and Analytical Geometry* (Ninth Edition), Pearson Publication.
9. S. NARAYAN, *Integral Calculus*, S. Chand and Company Ltd, 2001.
10. O. E. STANAITIS, *An Introduction to Sequences, Series and Improper Integrals*, Holden-Day, Inc., San Francisco, California.
11. EARL D. RAINVILLE, *Infinite Series*, The Macmillan Company, New York.

**MAT-MA-202: Paper-II : DIFFERENTIAL EQUATIONS**

**Credits = 3**

**Max. Marks : 60**

**Internal Assessment :15**

**Time : 3 hours**

- Note:**
1. The syllabus has been split into two Units: Unit-I and Unit-II. The examiner will set in total Nine questions including a compulsory question. The compulsory question (Question No.1) will contain 6 parts covering the entire syllabus. Four questions will be set from each Unit.

2. A student will be required to attempt five questions in all, selecting two questions from each Unit and the compulsory question. Each question will carry equal marks.
3. The teaching time shall be three periods (1 hour each) per week including tutorial.

Objective: The main objective is to exhibit various techniques for obtaining solutions of ordinary and linear differential equations.

Learning Outcomes: The course will enable students to solve first order ordinary and linear differential equations. The students will be able to solve first order and higher degree equations. The students will understand the concepts of linear differential equations of second order with constant and variable coefficients.

#### UNIT-I

Origin of Differential Equations, Basic Definitions, Family of Solutions, Geometric Interpretation. Review of Differential Equations of first order, Exact differential equations. First order and higher degree equations solvable for  $x$ ,  $y$ ,  $p$  and Clairaut's form. Singular solution as an envelope of general solutions. Geometrical meaning of a differential equation. Orthogonal trajectories.

#### UNIT-II

Linear differential equations of second order with constant coefficients, Auxiliary Equations. Non-Homogeneous Equations, Complimentary function and Particular Integrals, Method of undetermined coefficients, Method of variation of parameters. Linear differential equations of second order with variable coefficients, Cauchy and Legendre Equations. Series solution of Differential equations-Power Series method, Bessel and Legendre Equations.

**Practical Work (Maybe considered for internal assessment):** In pursual of the essence of NEP2020, the following Mathematics Practicals can be performed by students. The Practicals can be performed using Math based Free and Open Source Softwares such as Mathematica/ MATLAB/ Scilab/ Maxima/ Maple/SageMath etc.

1. Finding solution of first order differential equations
2. Finding solution of second order differential equations
3. Plotting of solution of first order differential equations.
4. Plotting of solution second order differential equations.

#### REFERENCES

1. EARL D. RAINVILLE and P.E. BENEDIET, *Elementary differential equations*, Seventh Edition, Macmillian Publishing Company, 1989.



2. ERWIN KREYSZIG, *Advanced Engineering Mathematics*, John Wiley & Sons Inc., New York, 1999.
3. D.A. MURRAY, *Introductory Course on Differential Equations*, Orient Longmen, (India), 1967.
4. S. L. ROSS, *Differential Equations*, John Willey & Sons, 2004.
5. A.R. FORSYTH, *A Treatise on Differential Equations*, Macmillan and Co. Ltd., London.

**B.A./B.Sc. (General) - MINOR in Mathematics- Session 2023-24**  
**Syllabus For 1st Sem (as per NEP-2020)**

**MAT-MI-103: CALCULUS-I and ALGEBRA**

**Credits = 6**

**Max. Marks : 120**

**Internal Assessment : 30**

**Time : 3 hours**

- Note:**
1. The syllabus has been split into two Units: Unit-I and Unit-II. The examiner will set in total Nine questions including a compulsory question. The compulsory question (Question No.1) will contain 6 parts covering the entire syllabus. Four questions will be set from each Unit.
  2. A student will be required to attempt five questions in all, selecting two questions from each Unit and the compulsory question. Each question will carry equal marks.
  3. The teaching time shall be six periods (1 hour each) per week including tutorial.

**Objective:**

The main goal of this course is to deliver the basics of differential calculus and linear algebra. It introduces the concepts of Limits, Continuity and Differentiability of functions in one variable as well as in two variables, curve tracing and vector calculus. It aims at understanding the multiplicity of roots and provides the understanding of the basic tools for solving cubic equations. The course introduces the concept of eigen values and eigen vectors of a matrix. The objective is to understand nature of solution of a linear system of equations.

**Learning Outcomes:**

This course will enable students to understand the concepts of Limits and continuity. Students will be able to understand the applications of differential and vector calculus. The course will enable students to determine derivatives of two variable functions, extreme values and understand the concepts of tangents and normals. This course will enable students to identify multiple roots and solve

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cubic equations The students will be able to determine the rank of a matrix, eigen values, eigen vectors and solve linear system of equations using matrices.

## UNIT-I

### CALCULUS

$\epsilon$ - $\delta$  definition of limit, one-sided limit, limits involving infinity, continuity, types of discontinuity, recall derivative of function, tangents and normal at a point, Rolle's theorem, Lagrange's theorem and Cauchy's mean value theorem.

Limits and continuity for functions of two variables, partial derivatives, the chain rule, vector differentiation, gradient, divergence, curl, directional derivative, tangent planes, properties and applications

## UNIT-II

### ALGEBRA

Euclid's algorithm, synthetic division, roots and their multiplicity. Complex roots of real polynomials occur in conjugate pairs with same multiplicity. Relation between roots and coefficients. Transformation of equations. Solution of cubic equations, Cardan's method of solving a cubic, discriminant and nature of roots of real cubic.

Hermitian and Skew-Hermitian matrices, linear dependence of row and column vectors, row rank, column rank and rank of a matrix and their equivalence. Eigen-values, eigen-vectors and characteristic equation of a matrix, Cayley-Hamilton theorem and its use in finding inverse of a matrix.

## REFERENCES

1. G. B. THOMAS, M. D. WEIR and J. R. HASS, THOMAS, *Thomas' Calculus*, (12<sup>th</sup> Edition), Pearson, 2014.
2. J. D. MURRAY and M. R. SPIEGEL, *Theory and Problems of Advanced Calculus*, Schaum's Outline Series, Schaum Publishing Co., New York.
3. S. NARAYAN and P. K. MITTAL, *Differential Calculus*, Ed 2006, S. Chand & Co., New Delhi.
4. M. J. STRAUSS, G. L. BRADLEY and K. J. SMITH, *Calculus*, (3<sup>rd</sup> Edition), Pearson Education, 2007.
5. S. R. KNIGHT and H. S. HALL, *Higher Algebra*, H.M. Publications, 1994.

6. S. NARAYAN and P. K. MITTAL, *A Text Book of Matrices*, Ed 2007, S. Chand & Co., New Delhi.
7. CHANDRIKA PRASAD, *Text Book on Algebra and Theory of Equations*, Pothishala Private Ltd. Allahabad.
8. V. SAHAI and V. BIST, *Linear Algebra*, 2<sup>nd</sup> Edition, Narosa Publishing House, 2013.
9. A. KUROSH, *Higher Algebra*, MIR Moscow, 1982.

**B.A./B.Sc. (General) -MINOR in Mathematics- Session 2023-24**  
**Syllabus for 2<sup>nd</sup> semester (as per NEP-2020)**

**MAT-MI-102: CALCULUS-II and DIFFERENTIAL EQUATIONS**

**Credits = 3**

**Max. Marks: 120**

**Internal Assessment :30**

**Time : 3 hours**

- Note:**
1. The syllabus has been split into two Units: Unit-I and Unit-II. The examiner will set in total Nine questions including a compulsory question. The compulsory question (Question No.1) will contain 6 parts covering the entire syllabus. Four questions will be set from each Unit.
  2. A student will be required to attempt five questions in all, selecting two questions from each Unit and the compulsory question. Each question will carry equal marks.
  3. The teaching time shall be six periods (1 hour each) per week including tutorial.

**Objective:** The aim of this course is to introduce the basic concepts of sequences and series, integral calculus and differential equations. The course exhibits various techniques for testing the convergence of an infinite

series. It develops the concepts of quadrature and rectification of curves. The course explains the fundamental techniques of solving ordinary and linear differential equations.

Learning Outcomes: This course will enable students to understand the basic concepts of convergence of sequences and infinite series. Students will be able to determine area bounded by curves, surface area of solids of revolution of curves and understand rectification of curves. The course will enable students to solve first order ordinary and linear differential equations. The students will be able to solve first order and higher degree equations. The students will understand the concepts of linear differential equations of second order with constant and variable coefficients.

## UNIT-I

### CALCULUS

Definition of a Sequence and its convergence. Definition of Infinite series and its Convergence/Divergence, p-Test, Comparison test, Cauchy's integral test, Cauchy's Root test, Ratio test (Statements Only).

Definite Integrals, Properties of definite integrals, Quadrature, Area between curves, Length of a plane curve: Rectification, Area of the Surface of solids of revolution (Cartesian co-ordinates only)

## UNIT-II

### DIFFERENTIAL EQUATIONS

Origin of Differential Equations, Basic Definitions, Family of Solutions, Geometric Interpretation. Review of Differential Equations of first order, Exact differential equations. First order and higher degree equations solvable for  $x$ ,  $y$ ,  $p$  and Clairaut's form. Geometrical meaning of a differential equation.

Linear differential equations of second order with constant coefficients, Auxiliary Equations. Non-Homogeneous Equations, Complimentary function and Particular Integrals  
Linear differential equations of second order with variable coefficients, Cauchy and Legendre Equations.

## REFERENCES

1. R. G. BERTLE and D.R. SHERBERT: *Introduction to Real Analysis* (Fourth Edition), Wiley India Edition.
2. G. B. THOMAS, M. D. WEIR and J. R. HASS, THOMAS, *Thomas Calculus*, (12<sup>th</sup> Edition), Pearson, 2014.

3. J. D. MURRAY and M. R. SPIEGEL, *Theory and Problems of Advanced Calculus*, Schaum's Outline Series, Schaum Publishing Co., New York.
4. G. B. THOMAS and R.L.FINNEY: *Calculus and Analytical Geometry* (Ninth Edition), Pearson Publication.
5. S. NARAYAN, *Integral Calculus*, S. Chand and Company Ltd, 2001.
6. O. E. STANAITIS, *An Introduction to Sequences, Series and Improper Integrals*, Holden-Day, Inc., San Francisco, California.
7. EARL D. RAINVILLE and P.E. BENEDIET, *Elementary differential equations*, Seventh Edition, Macmillian Publishing Company, 1989.
8. ERWIN KREYSZIG, *Advanced Engineering Mathematics*, John Wiley & Sons Inc., New York, 1999.
9. D.A. MURRAY, *Introductory Course on Differential Equations*, Orient Longmen, (India), 1967.
10. S. L. ROSS, *Differential Equations*, John Willey & Sons, 2004.

MAT-SE-101:DISCRETE<sup>I</sup>MATHEMATICS

Credits: 3

Max.Marks:60

Time allowed: 3hrs

InternalAssessment:15

Note:

1. Candidates will be asked to attempt five questions out of nine, carrying equal marks. Question No. 1 spread over the whole syllabus will be compulsory.
2. There will be four questions from each unit and the students will have to attempt two from each unit.

**Objective:** The objective of this course is to acquaint the students with the basic concepts in Discrete Mathematics and Graph Theory. The course discusses some important applications of graph theory.

**Learning Outcomes:** The course will enable students to understand sets, relations and functions. The students will be able to understand the basics of graph theory

### Unit-I

Definition of set, partitions of sets, min sets, duality principle, properties of relations: injective, surjective and bijective functions, compositions. Recurrence Relations and Recursive Algorithms - Linear-Recurrence Relations with Constant Coefficients; Homogeneous Solutions: Particular Solution, Total Solution, Solution by the Method of Generating functions.

### Unit-II

Graph and planar graphs – Basic Terminology, Multi-graphs, Weighted Graphs, Paths and Circuits, Shortest Paths, Eulerian Paths and Circuits. Travelling Salesman Problem, Planar graphs. Spanning Trees, Prim's Algorithm for generating minimum weight spanning graphs, Digraphs, and Chromatic numbers.

### REFERENCES

1. A. Doerr and L. Kenneth, Applied Discrete Structures for Computer Science, 1989, Galgotia Publications Pvt. Ltd.
2. C. L. Liu, 1985, Elements of Discrete Mathematics, McGraw Hill.
3. S. Lipschutz and Lipson: 2000 Solved Problems in Discrete Mathematics, McGraw-Hill, 1992.

## MAT-SE-201: MATHEMATICAL MODELING

Credits: 3

Contact hours: 30

3hrs/week

Max. Marks: 60

Internal Assessment: 15

Time allowed: 3 hrs

**Note:**

1. Candidates will be asked to attempt five questions out of nine, carrying equal marks. Question No. 1 spread over the whole syllabus will be compulsory.
2. There will be four questions from each unit and the students will have to attempt two from each unit.

**OBJECTIVE:** The course content is designed to introduce the concept of mathematical modelling. The course explains fundamental techniques of solving basic differential equations and different mathematical models.

**Learning Outcomes:** Students will be able to solve first order ordinary differential and initial value problems. Students will be able to learn the basic techniques of Mathematical Modeling and also its limitations. Students will be able to learn basic population and epidemic models. Students will be able to learn the concepts of equilibrium points and stability and their importance in Mathematical Modeling.

**UNIT-I**

First order ordinary differential equations, Geometric Interpretation, Separable differential equations, Exact differential equations, Initial Value Problems (IVP).

Simple situations requiring mathematical modeling; The technique of mathematical modeling, Classification of mathematical models, Limitations of mathematical modeling.

Mathematical modeling through ordinary differential equations, Mathematical modeling in population dynamics, Growth and decay models.

**UNIT-II**

Equilibrium points and stability, Limited growth model with harvesting, Discrete population growth and chaos, Time delay regulation. (Section 2.11, 3.3, 3.6, 3.7 of [1])

Prey-predator models, Competition models, Mathematical modeling of epidemics through system of Ordinary Differential Equations, A simple Epidemic model, SIS and SIR models, Epidemic model of influenza and its application. (Section 5.1, 5.2, 5.3, 5.5 of [1])

**REFERENCES**

1. B. Barnes & G. R. Fulford: *Mathematical modelling with case studies (using Maple & Matlab)* CRC press, Taylor and Francis, 2009.
2. S.L. Ross, *Differential Equations*, 3rd Ed., John Wiley and Sons, India, 2004.
3. E. A. Coddington, *An introduction to ordinary differential equation*, Prentice- Hall of India.
4. J. N. Kapur, *Mathematical modeling*, New age international publishers, New Delhi, 2013.
5. E. Kreyszig, *Advanced Engineering Mathematics*, John Wiley & Sons Inc., New York, 1999.
6. D.A. Murray, *Introductory Course on Differential Equations*, Orient Longmen, (India), 1967.



(Students who have not studied Mathematics in 10+1, 10+2)  
Semester - I

Credit-3  
3 hrs/per week

Max.Marks :60  
Internal Assessment-15  
Time allowed - 3hrs

Note:

1. Candidates will be asked to attempt four questions out of eight, carrying, equal marks. .
2. There will be four questions from each unit and the students will have to attempt two from each unit

**Objective :** The objective of this course is to study the basic of various topics of Mathematics which is foundation for further learning in mathematics , physics, statistics etc

Course Learning outcomes :- The course will enable the students to learn the following :-

1. Application of set theory and permutation combination .
2. Basics of matrices and its determinant.
3. Basic statistics, mean deviation, variance and standard deviation .
4. Graphical representation of solution of linear inequalities and its application.

**Unit –I**

Sets, Principal of Mathematical Induction, Permutation and Combinations,

{Scope as in chapters 1, 4 ,7, of (A)}

Matrices – Introduction, Matrix , type of Matrices , operations on matrices , Transpose of Matrix , Symmetric and skew symmetric Matrices

{Scope as in chapters 3 (3.1 to 3.6) of (B) Part-I }

Determinants – Introduction, Determinant , Properties of Determinants ., Minor and Cofactors , Adjoint and Inverse of Matrix.

{Scope as in Chapter 4 (4.1 to 4.6) of (B) Part-I }

**Unit – II**

Statistics – Introduction, Measure of Dispersion, Range , Mean Deviation ;variance and Standard Deviation, Analysis of Frequency Distribution,

Linear Inequalities – Introduction , Algebraic Solution of Linear Inequalities in one variable and their Graphical Representation , Graphical Solution of Linear Inequalities in Two variables , Solution of System of Linear Inequalities in Two variables

{Scope as in chapters 6, 15 of(A) }

Essential Textbooks

1. Mathematics , A Text book for class XI , NCERT,2006
2. Mathematics , A Text book for class XII , NCERT ( Part I and Part II ),2006

**MAT-ID-201 : BASIC MATHEMATICS - II**  
**(Students who have not studied Mathematics in 10+1, 10+2)**  
**Semester – II**

Credit-3  
3 hrs/per week

Max.Marks :60  
Internal Assessment-15  
Time allowed - 3hrs

**Note:**

3. Candidates will be asked to attempt four questions out of eight, carrying, equal marks. .
4. There will be four questions from each unit and the students will have to attempt two from each unit

**Objective :** This course is designed to introduce the fundamental concepts of limits continuity , differentiation , integration of functions of one variable and Probability Its objective is to acquaint students with various applications of these topics relating to extreme value problems, problems related to Probability.

**Course Learning outcomes :-** The course will enable the students to learn the following :-

1. Idea of limit continuity derivative and application of derivative (increasing and decreasing of function, maximum, minimum, rolles theorem).
2. Integration as anti derivative and process of integration.
3. Basic Idea of probability.

**Unit-I**

**Limits, continuity, Derivative and differentiability–(Excluding Trigonometric Functions)**

Introduction, intuitive Idea of derivative ,Limits, , Continuity, Differentiability. Exponential and Logarithmic Differentiation, Derivative of a function in parameter, Second order derivative,  
(Scope as in Chapter 13 of (A) & Chapter 5 Part-I of (B))

Application of derivative : Increasing and decreasing functions. Maxima and minima. Rolle's Theorem (without proof).

(Scope as in Chapter 6 of (B) Part-I )

**Unit-II**

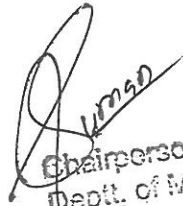
**Integral Calculus –(Excluding Trigonometric Functions)**

Integral as anti- derivative, Integration by substitution, by partial fractions and by parts.  
(Scope as in Chapter 7 & 8 of Part II of (B))

Probability – Introduction , Random Experiments , Event , Axiomatic Approach to Probability  
(Scope as in Chapter 16 of (A))

Essential Textbooks

1. Mathematics , A Text book for class XI , NCERT ,2006
2. Mathematics , A Text book for class XII , NCERT ( Part I and Part II ) ,2006

  
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Appendix to  
Stem No. LXVI

**Scheme of Studies**  
**B.A. /B.Sc. Statistics 2023-2024 (Under NEP 2020)**

Sr. No.	Subject	Course	Credit (Th. +Pr.)			Theory Marks		Practical Marks				Total
			T	P	Total	Paper	IA*	Total	Paper	IA*	Total	
1	Major	STAT-MA-101 : PROBABILITY THEORY AND DESCRIPTIVE STATISTICS-I	3	1	4	65	10	75	15	10	25	100
2	Major	STAT-MA-102 : PROBABILITY THEORY AND DESCRIPTIVE STATISTICS-II	3	1	4	65	10	75	15	10	25	100
3	Minor	STAT-MI-01: STATISTICAL METHODS	3	1	4	60	15	75	15	10	25	100
4	Minor	STAT-MI-02 : INTRODUCTORY PROBABILITY	3	1	4	60	15	75	15	10	25	100

**Scheme of Studies**  
**B.A. /B.Sc. Applied Statistics 2023-2024 (Under NEP 2020)**

Sr. No.	Subject	Course	Credit (Th. +Pr.)			Theory Marks		Practical Marks				Total
			T	P	Total	Paper	IA*	Total	Paper	IA*	Total	
1	Major	MA-101 AS : METHMATICAL METHODS-I	4	-	4	90	10	-	-	-	-	100
2	Major	MA-102 AS: INTRODUCTORY PROBABILITY	4	-	4	90	10	-	-	-	-	100



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**Scheme of Studies**  
**B.A. /B.Sc. Statistics 2023-2024 (Under NEP 2020)**  
**Semester-I**

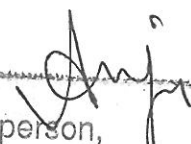
Sr. No.	Subject	Course	Credit (Th. +Pr.)			Theory Marks		Practical Marks				Total
			T	P	Total	Paper	IA*	Total	Paper	IA*	Total	
1	Major	STAT-MA-101 : PROBABILITY THEORY AND DESCRIPTIVE STATISTICS-I	3	1	4	65	10	75	15	10	25	100
2	Minor	STAT-MI-01: STATISTICAL METHODS	3	1	4	60	15	75	15	10	25	100

**Scheme of Studies**  
**B.A. /B.Sc. Statistics 2023-2024 (Under NEP 2020)**  
**Semester-II**

Sr. No.	Subject	Course	Credit (Th. +Pr.)			Theory Marks		Practical Marks				Total
			T	P	Total	Paper	IA*	Total	Paper	IA*	Total	
1	Major	STAT- MA-102 : PROBABILITY THEORY AND DESCRIPTIVE STATISTICS-II	3	1	4	65	10	75	15	10	25	100
2	Minor	STAT-MI-02 : INTRODUCTORY PROBABILITY	3	1	4	60	15	75	15	10	25	100

**Scheme of Studies**  
**B.A. /B.Sc. Applied Statistics 2023-2024 (Under NEP 2020)**

Sr. No.	Subject	Course	Credit (Th. +Pr.)			Theory Marks		Practical Marks				Total
			T	P	Total	Paper	IA*	Total	Paper	IA*	Total	
1	Major	MA-101 AS : METHEMATICAL METHODS-I	4	-	4	90	10	-	-	-	-	100
2	Major	MA-102 AS: INTRODUCTORY PROBABILITY	4	-	4	90	10	-	-	-	-	100

  
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**B.A./B.SC.(GENERAL) FIRST YEAR (SEMESTER SYSTEM )  
2023-24 SYLLABUS**

**Discipline Specific Course (Major/Core)**

**Statistics  
SEMESTER – I**

**Credit: 4  
L-3, P-1**


- Notes:**
1. A candidate shall offer this subject in B.A./B.Sc. only if he/she takes up Mathematics as a subject in B.A./B.Sc.
  2. Students are to be engaged to 5 hours of teaching per week (3 lectures for theory and 2 lectures for practical).
  3. Practical Examination will be held in the respective/same semester.

Paper Title with code	Lecture(L) /Credit	Practical(P)/ Credit	Marks Distribution	
			Theory	Practical
STAT-MA-101: PROBABILITY THEORY and DESCRIPTIVE STATISTICS-I	Lecture :3 Credit: 3	Practical Lecture:2 Credit:1	Max. Marks: 75	Max. Marks: 25
			Theory: 65 Internal Assessment : 10 Time: 3 Hours	Viva voce: 5 Record of the practical: 5 Written practical Exam: 15 Time: 3 Hours

**Objective:** The objective of the course is to make the students conversant with various techniques used in summarization and analysis of data. The focus will be both on theoretical as well as practical approach. This course will lay the foundation to probability theory of outcomes of real life random experiments. The focus will be on theoretical as well as practical approach.

**Learning Outcomes:** On completion of this course students will be able to:

- Understand the concepts of probability, random variables and independence of random variables.
- Calculate probabilities and derive the marginal and conditional distributions of bivariate random variables.
- Understand the significance of statistics and probability in the real world.
- Calculate and apply measures of location and measures of dispersion grouped and ungrouped data cases.
- Understand the nature of statistical data.
- Organize, present, analyze and compare different sets of data using charts, diagrams and numerical measures.

  
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**Notes:**

1. There will be in all nine (9) questions, all of equal marks. The first question is **compulsory** and will be of short answer type covering the entire syllabus. Out of the remaining eight (8) questions, four (4) questions will be set from each Unit. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each Unit.
2. Simple non-programmable calculator is allowed.
3. Statistical tables and log tables will be provided on request.

**Unit-I**

*Important Concepts in Probability:* Random experiment, trial, sample point and sample space, definition of an event, mutually exclusive, exhaustive, independent and equally likely events. Definition of probability – classical and relative frequency approach to probability, their demerits and axiomatic approach to probability. Properties of probability based on axiomatic approach, conditional probability, Bayes' theorem and its applications (concepts and simple applications).


*Random Variables:* Definition of discrete random variables, probability mass function, continuous random variable, probability density function, illustrations of random variables and their properties, distribution function and its properties, expectation of a random variable and its properties – moments, (only definition), moment generating function. Two dimensional random variables- joint, marginal and conditional distributions. Distribution of random variables.

**Unit-II**

*Collection of Data:* Primary data – designing a questionnaire and a schedule. Secondary data- its major sources including some government publications. Concept of a Statistical Population and samples from a population; qualitative and quantitative data; discrete and continuous data.

*Presentation of Data:* Diagrammatic representations of data, frequency distribution, graphical representation, histogram, frequency polygon, frequency curves and ogives, stem-and-leaf-display, Box and whisker plot.

*Analysis of Quantitative Data:* univariate data concepts of central tendency, dispersion and relative dispersion, skewness and kurtosis and their measures including those based on quartiles and moments. Sheppard's correction for moments (without derivation).



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B.A./B.SC.(GENERAL) FIRST YEAR (SEMESTER SYSTEM ) 2023-24  
SYLLABUS

**Suggested Readings**

1. Meyer P.L (1971) : *Introductory Probability and Statistical applications*. Addison Wesley.
2. Goon A.M., Gupta M.K., Dasgupta.B. (2005) : *Fundamentals of Statistics*, Vol. I, World Press, Calcutta.
3. Daniel, W.W. and Cross C.L.(2013) : *Biostatistics* (7th edition) Wiley.

**Additional Readings**

1. Mood A.M, Graybill F.A and Boes D.C. (1977) : *Introduction to the Theory of Statistics*, McGraw Hill.
2. Miller, I. and Miller, M. (2002) : John E. Freund's *Mathematical Statistics* (6th addition, low price edition). Prentice Hall of India.
3. Sheldon M.R. (2000) : *Introduction to Probability Models*, Fourth Edition.
4. Croxton F.E, Cowden D.J and Kelin S (1973) : *Applied General Statistics*, Prentice Hall of India.
5. Lipshut Z, S., Lipson, Lipson, M.L. and Jain, K. (2010) : *Schaum's outlines on Probability*, Second Special Indian Edition, Tata McGraw Hill Education Private Limited.
6. Spiegel, M.R, Stephens, L.J. and Kumar N. (2010) : *Schaum's outlines Statistics*, (4th edition) Tata McGraw Hill Education Private Limited.



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## STAT-MA-101: PROBABILITY THEORY and DESCRIPTIVE STATISTICS-I (PRACTICAL)

**Notes:**

- (i). The practical of paper STAT-MA-101 will be based on the following topics: -
- (ii). The Practical Question Paper will contain five questions. A student will be required to attempt any three questions, each of 5 marks, in three hours duration.

1. Presentation of data by Frequency tables
2. Diagrams: Bar, Multiple Bar, Stacked Bar, Line and Pie
3. Graphs: histogram, frequency polygon, frequency curves and ogives, stem-and-leaf-display
4. Measures of central tendency
5. Measures of dispersion
6. Measures of Skewness
7. Box and Whisker Plot
8. Measures of Kurtosis.

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**B.A./B.SC.(GENERAL) FIRST YEAR (SEMESTER SYSTEM )  
2023-24 SYLLABUS**

**Discipline Specific Course (Major/Core)**

**Statistics**

**SEMESTER-II**

**Credit: 4  
L-3, P-1**

- Notes:** 1. A candidate shall offer this subject in B.A./B.Sc. only if he/she takes up Mathematics as a subject in B.A./B.Sc.
2. Students are to be engaged to 5 hours of teaching per week (3 lectures for theory and 2 lectures for practical).
3. Practical Examination will be held in the respective/same semester.

Paper Title with code	Lecture(L) /Credit	Practical(P)/ Credit	Marks Distribution	
			Theory	Practical
STAT-MA-102: PROBABILITY THEORY and DESCRIPTIVE STATISTICS-II	Lecture :3 Credit: 3	Practical Lecture:2 Credit:1	Max. Marks: 75	Max. Marks: 25
			Theory: 65 Internal Assessment : 10 Time: 3 Hours	Viva voce: 5 Record of the practical: 5 Written practical Exam: 15 Time: 3 Hours

**Objective:** This course will lay the foundation to probability theory of outcomes of real life random experiments through various Statistical distributions. The objective of the course is to make the students conversant with various techniques used in analysis of data.

**Learning Outcomes:** On completion of this course students will be able to:

- Understand about various discrete and continuous distributions.
- Describe the usage of weak laws of large numbers and central limit theorem.
- Understand about the types of correlations for bivariate and multivariate data and their uses in real life problems.
- Highlight the concept of linear regression and its applications in real life.
- Understand the various measures of association between attributes.

**Notes:**

1. There will be in all nine (9) questions, all of equal marks. The first question is **compulsory** and will be of short answer type covering the entire syllabus. Out of the remaining eight (8) questions, four (4) questions will be set from each Unit. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each Unit.
2. Simple non-programmable calculator is allowed.
3. Statistical tables and log tables will be provided on request.

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## Unit-I

*Standard Univariate Distributions and their Properties:* Discrete uniform, Binominal, Poisson, Hyper geometric, Geometric and negative binomial distributions, uniform, normal, exponential, gamma, beta distributions.

Chebyshev's inequality and its applications, statements and applications of weak law of large numbers, and Central Limit Theorems (De-moivre's – Laplace and Lindeberg –Levy).

## Unit-II

*Bivariate Data:* scatter diagram, product moment correlation coefficient, properties and coefficient of determination. Spearman's rank correlation coefficient. Simple linear regression and its properties, principle of least square, fitting of linear regression and related results

*Multivariate Data:* multiple and partial correlation in three variables. (only results no derivations).

*Analysis of Categorical Data (using 2x2 contingency table):* consistency of categorical data independence and association of attributes. Various measures of association:-Yule coefficient, coefficient of colligation & coefficient  $V_{AB}$ .

## References:

1. Meyer P.L (1971) : *Introductory Probability and Statistical applications.* Addison Wesley.
2. Goon A.M., Gupta M.K., Das Gupta.B. (2005) : *Fundamentals of Statistics, Vol. I, World Press, Calcutta.*
3. Daniel, W.W. and Cross C.L.(2013) : *Biostatistics: A Foundation for analysis in the Health Sciences, Tenth Edition, Wiley*

## Additional References:

1. Mood A.M, Graybill F.A and Boes D.C. (1977) : *Introduction to the Theory of Statistics, McGraw Hill.*
2. Miller, I. and Miller, M. (2002) : *John E. Frennd's Mathematical Statistics (6<sup>th</sup> addition, low price edition). Prentice Hall of India.*
3. Sheldon M.R. (2000) : *Introduction to Probability Models, Fourth Edition.*
4. Croxton F.E, Cowden D.J And Kelin S (1973) : *Applied General Statistics, Prentice Hall of India.*
5. Lipshut Z,S., Lipson, Lipson, M.L. and Jain, K. (2010) : *Schaum's outlines on Probability, Second Special Indian Edition, Tata McGraw Hill Education Private Limited.*
6. Spiegel, M.R, Stephens, L.J. and Kumar N. (2010) Private Limited. *Schaum's outlines Statistics, (4<sup>th</sup> edition) Tata McGraw Hill Education*



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## STAT-MA-102: PROBABILITY THEORY and DESCRIPTIVE STATISTICS-II (PRACTICAL)

**Notes:**

- (i). The practical of paper STAT-MA-102 will be based on the following topics:
- (ii). The Practical Question Paper will contain five questions. A student will be required to attempt any three questions, each of 5 marks, in three hours duration.

1. Product Moment Correlation.
  2. Spearman's rank correlation
  3. Linear Regression of two variables.
  4. Fitting of Curves (reducible to linear form) by the least square method.
  5. Multiple and Partial correlations up to three variables.
  6. Measures of Association.
  7. Fitting of Binomial, Poisson and Normal distributions
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From session 2023-24

B.A./B. Sc. SEMESTER- I

Credit: 4  
L-3, P-1

Notes:

1. This course is not for the students of B.A./B.Sc. (General) Statistics Discipline Specific courses (Major/Core). Any other candidate shall offer this minor subject in B.A./B.Sc.
2. Students are to be engaged to 6 hours of teaching per week (4 lectures for theory and 2 lectures for practical).
3. Practical Examination will be held in the respective/same semester.

Paper Title with code	Lecture(L)/C redit	Practical(P)/ Credit	Marks Distribution	
			Theory	Practical
STAT-MI-01: <b>STATISTICAL METHODS</b>	Lecture :3 Credit: 3	Practical Lecture:2 Credit:1	Max. Marks: 75	Max. Marks: 25
			Theory: 60 Internal Assessment: 15 Time: 3 Hours	Viva voce: 5 Record of the practical: 5 Written practical Exam: 15 Time: 3 Hours

**Course Objective:** The course aims to shape the attitudes of learners regarding the field of statistics. The objective of the course is to make the students familiar with various techniques used in summarization, presentation and analysis of data. The focus will be both on theoretical as well as practical approach.


**Course Outcome:** On completion of this course students will be able to:

- (i) Get familiar with various techniques used in summarization and analysis of data.
- (ii) Understand the nature of statistical data.
- (iii) Understand about the types of correlations for bivariate and multivariate data and their uses in real life problems.
- (iv) Highlight the concept of linear regression and its applications in real life
- (v) Understand the various measures of association between attributes.

**Note for Theory:** - There will be in all nine (9) questions, all of equal marks. The first question is compulsory and will be of short answer type covering the entire syllabus. Out of the remaining eight (8) questions, four (4) questions will be set from each Unit. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each Unit.

### UNIT I

Introduction: Definition and scope of Statistics, concepts of statistical population and sample. Scales of measurement - nominal, ordinal, interval and ratio. Variables and attributes, Diagrammatical Representation of Data, Summarization of Data: Frequency Distribution and Graphical Presentation (histogram, frequency polygon and ogives).

  
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Measures of Central Tendency: mathematical and positional. Measures of Dispersion: range, quartile deviation, mean deviation, standard deviation, coefficient of variation, moments, measures of skewness and kurtosis and Box-whisker Plot.

## UNIT II

Bivariate data: Definition, scatter diagram, simple correlation, rank correlation (with ties and without ties). Partial and Multiple Correlation Coefficients. Only definition and its applications (No derivation)

Fitting of linear and quadratic regression equations using principle of least squares. Theory of attributes and consistency of data, independence and association of attributes, measures of association and contingency for  $2 \times 2$  and  $r \times s$  contingency tables.

### SUGGESTED READINGS:

1. Goon, A.M., Gupta, M.K. and Dasgupta, B. (2013): Fundamental of Statistics, Vol I, World Press, Kolkata
2. Goon, A.M., Gupta, M.K. and Dasgupta, B. (2011): Fundamental of Statistics, Vol II, World Press, Kolkata.
3. Miller, Irwin and Miller, Marylees (2006): John E. Freund's Mathematical Statistics with Applications, (7th Edn.), Pearson Education, Asia.
4. Mood, A.M. Graybill, F.A. and Boes, D.C. (2011): Introduction to the Theory of Statistics, 3rd Edn., (Indian Edition), Tata McGraw-Hill Pub. Co. Ltd.

### STAT-MI-01(PRACTICAL): STATISTICAL METHODS

(Credit: 1)

Practical: Max. Marks: 25

Practical will be based on Paper STAT-MI-01(PRACTICAL): STATISTICAL METHODS

Practical: Final Written Examination: 15 marks, Internal Assessment: 5 marks, viva-voce: 5 marks

Note for Practical: The practical question paper will consist of 5 questions. The students will be required to attempt any three questions in three hours duration.



Chairperson,  
Department of Statistics,  
Panjab University, Chandigarh



**B.A./B. Sc. SEMESTER- II  
STATISTICS MINOR**

**Credit: 4  
L-3, P-1**

**Notes:**

1. This course is not for the students of B.A./B.Sc. (General) Statistics Discipline Specific courses (Major/Core). Any other candidate shall offer this minor subject in B.A./B.Sc.
2. Students are to be engaged to 6 hours of teaching per week (4 lectures for theory, and 2 lectures for practical).
3. Practical Examination will be held in the respective/same semester.

Paper Title with code	Lecture(L) /Credit	Practical(P)/ Credit	Marks Distribution	
			Theory	Practical
STAT-MI-02: INTRODUCTORY PROBABILITY	Lecture :3 Credit: 3	Practical Lecture:2 Credit:1	Max. Marks: 75	Max. Marks: 25
			Theory: 60 Internal Assessment: 15 Time: 3 Hours	Viva voce: 5 Record of the practical: 5 Written practical * Exam: 15 Time: 3 Hours

**Course Objective:**

The aim of the course is to pay a special attention to applications of Probability Theory. The main focus of the course is to make the students familiar with various probability distributions and their uses in real life. The focus will be both on theoretical as well as practical approach.


**Course Outcome:** On completion of this course students will be able to understand the concept of probability theory, random variable and their significance in real world. Students will get knowledge about various discrete and continuous distributions to solve problems. Students will understand the usage of Central Limit Theorem.

**Note for Theory:** - There will be in all nine (9) questions, all of equal marks. The first question is compulsory and will be of short answer type covering the entire syllabus. Out of the remaining eight (8) questions, four (4) questions will be set from each Unit. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each Unit.

**UNIT I**

**Probability:** Introduction, random experiments, sample space, events independent, dependent, mutually exclusive, exhaustive, equally likely and algebra of events. Classical, statistical, and axiomatic approaches to probability, Conditional Probability, laws of addition and multiplication, theorem of total probability, Bayes' theorem and its applications,

**Random Variables (for univariate distribution only):** Discrete and continuous random variables, Probability mass function (p.m.f.), Probability density function (p.d.f.), Cumulative distribution function (c.d.f.) Illustrations of random variables and their properties. Expectation, variance, moments and moment generating function.

  
 Chairperson,  
 Department of Statistics,  
 Panjab University, Chandigarh

**UNIT II**

Standard probability distributions: Binomial, Poisson, geometric, negative binomial, hyper geometric, uniform, normal, exponential, beta, gamma and their applications. Fitting of Binomial, Poisson and Normal Distributions Chebyshev's inequality, Convergence in probability, Weak law of large numbers, Convergence in Distribution, De-Moivre Laplace and Lindeberg-Levy Central Limit Theorems (C.L.T.).

**SUGGESTED READINGS:**

1. Hogg, R.V., Tanis, E.A. and Rao J.M. (2009): Probability and Statistical Inference, Seventh Ed, Pearson Education, New Delhi.
2. Miller, Irwin and Miller, Marylees (2006): John E. Freund's Mathematical Statistics with Applications, (7th Edn.), Pearson Education, Asia.
3. Rohatgi, V. K. and Saleh A.K.M.E. (2010) : An Introduction to Probability Theory and Mathematical Statistics, Wiley Eastern.
4. Meyer, P.L. (1970): Introductory Probability and Statistical Applications, Oxford & IBH Publishing, New Delhi

**STAT-MI-02: INTRODUCTORY PROBABILITY (PRACTICAL)****(Credit: 1)****Practical: Max. Marks: 25**

**Practical will be based on Paper STAT-MI-02: INTRODUCTORY PROBABILITY.**

**Practical:** Final Written Examination: 15 marks, Internal Assessment: 5 marks, viva-voce: 5 marks

**Note for Practical:** The practical question paper will consist of 5 questions. The students will be required to attempt any three questions in three *three* duration.



Chairperson,  
Department of Statistics,  
Panjab University, Chandigarh

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B.A./B.SC.(GENERAL) FIRST YEAR (SEMESTER SYSTEM ) 2023-24  
SYLLABUS

**Discipline Specific Course (Major/Core)**  
**APPLIED STATISTICS**  
**SEMESTER – I**

**Credit: 4**  
**L-4**

- Note:**
1. This course shall not be opted for along with courses in B.A. /B.Sc. Mathematics and/ or B.A. / B.Sc. Statistics.
  2. The candidate opting for this course will not be eligible for admission to M.A./ M.Sc. Statistics.
  3. There is one paper with code MA-101AS in B.A. /B.Sc. Semester-I having a total of 100 marks.
  4. Students are to be engaged to 4 hours of teaching per week (4 lectures for theory).

Paper Title with code	Lecture(L)/Credit	Marks Distribution
MA-101 AS: <b>MATHEMATICAL METHODS – I</b>	Lecture :4 Credit: 4	Max. Marks: 100  Theory: 90 Internal Assessment : 10 Time: 3 Hours


**Objective:** The objective of the course is to provide knowledge of the basic concepts in Calculus, Trigonometry, Algebra and Geometry.

**Learning Outcomes:** On completion of this course students will be able to:

1. Apply derivatives in real life problems.
2. Use functions in daily life situations.
3. Able to recognize plane curves.

**Notes:**

1. There will be in all nine (9) questions, all of equal marks. The first question is compulsory and will be of short answer type covering the entire syllabus. Out of the remaining eight (8) questions, four (4) questions will be set from each Unit. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each Unit.
2. **Simple non-programmable calculator is allowed.**
3. **Statistical tables and log tables will be provided on request.**

  
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Department of Statistics,  
Panjab University, Chandigarh

**UNIT-I (CALCULUS AND TRIGONOMETRY)**

Limits and continuity of functions, derivatives and their geometrical interpretations. Applications of derivatives to maxima and minima, exponential and logarithmic functions, integrals of functions of one variable, geometrical interpretation of integral as area, integration of standard functions, integration by substitution and parts.

*Trigonometry:* Definition of an angle, its various measures and relations between them, graphs circular functions.

**UNIT-II (ALGEBRA AND GEOMETRY)**

The solution of linear and quadratic equations in one variable, arithmetic, geometric and harmonic progressions, permutations and combinations, principle of induction, Binomial theorem for positive integral index.

*Elementary Analytical Geometry:* Equations of straight line, parabola, and hyperbola.

**Books Recommended**

1. Allen, R.G.D (2006) : Mathematical Analysis for Economists, Chapter-II (Units 2.1, 2.2, 2.8), Chapter-III (Units 3.1, 3.6), Chapter – IV (Units 4.1, 4.7), Chapter VI (Units 6.1 – 6.8), Chapter VII, Chapter VIII (Unit 8.2), Chapter IX (Units 9.1 – 9.4), Macmillan Delhi.
2. Gurhard Tintner (1970) : Mathematics and Statistics for Economists Chapter – VI., Rinehart : New York
3. Loney, S.L. (2010) : Plane Trigonometry, Part – I, Chapter – I (Units I to 22), Part – II, Chapter V (Units 61, 65), Aitbs Publishers, India.

**Additional references:**

1. Arye, F. Jr. (1999) : First Year College Mathematics (Schaum's Series). Mc Graw Hill, New York.



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Panjab University, Chandigarh

**Discipline Specific Course (Major/Core)****APPLIED STATISTICS****SEMESTER – II****Credit: 4**  
**L-4**

- Note:**
1. This course shall not be opted for along with courses in B.A. /B.Sc. Mathematics and/ or B.A. / B.Sc. Statistics.
  - 2 The candidate opted for this course will not be eligible for admission to M.A./ M.Sc. Statistics.
  3. There is one paper with code MA-102AS in B.A./B.Sc. Semester-II having a total of 100 marks.
  4. Students are to be engaged to 4 hours of teaching per week (4 lectures for theory).

Paper Title with code	Lecture(L)/Credit	Marks Distribution
MA-102 AS: <b>PROBABILITY</b>	Lecture :4 Credit: 4	Max. Marks: 100  Theory: 90 Internal Assessment : 10 Time: 3 Hours

**Objective:** This course will lay the foundation to probability theory of outcomes of real life random experiments through various Statistical distributions.

**Learning Outcomes:** On completion of this course students will be able to:

- Understand the concepts of probability, random variables and independence of random variables.
- Understand the significance of probability in the real world.
- Understand about various discrete and continuous distributions and their applications.

**Notes:**

1. There will be in all nine (9) questions, all of equal marks. The first question is compulsory and will be of short answer type covering the entire syllabus. Out of the remaining eight (8) questions, four (4) questions will be set from each Unit. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each Unit.
2. Simple non-programmable calculators are allowed.
3. Statistical tables and log tables will be provided on request.



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## UNIT-I

*Important Concepts in Probability:* Random experiments, sample space, events probability, Finite sample spaces, equally likely outcomes, conditional probability, Bayes theorem, independent events, *Random Variables:* Definition of random variables, discrete and continuous probability density functions, distribution function and its properties, Expectation and variance of random variable and their properties.

## UNIT -II

*Standard Univariate Distributions and their Properties:* Binomial, Poisson, negative binomial, geometric, hypergeometric, uniform, exponential and normal distribution.


**Books Prescribed**

- |   |   |   |
|---|---|---|
| 1. P.L.Meyer , (1971)                                   | : | Introductory Probability and Statistical Applications, Addison Wesley, chapters 1, 2, 3, 4, 5, 8 and 9. |
| 2. Goon, A.M., Gupta, M.K. & Dasgupta,B (2005).         | : | Fundamentals of Statistics, Vol. I. The world press private Ltd.  |
| 3. Murray Spiegel, John Schiller & A. Srinivasan (2002) | : | Schaum's Easy outline of Probability and Statistics, Mc Graw Hill, New York.                            |

**Additional References:**

- |  |   |  |
|--|---|--|
| 1. Sheldon M. Ross (2009)                      | : | Introduction to Probability Models, Academic Press: San Diego. |
| 2. Mood A.M, Graybill F.A. & Boes D.C. (1977). | : | <i>Introduction to the Theory of Statistics</i> , McGraw Hill. |

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Chairperson,  
Department of Statistics,  
Panjab University, Chandigarh

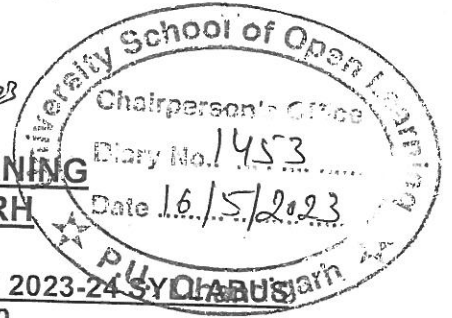
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D-STAT/23/397  
17/5/2023  
22/5/2023

2029/AM  
16/5/23  
17/05/2023  
18/5/2023  
22/5/2023

57/Stat/0802  
16/5/23  
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**DEPARTMENT OF STATISTICS**  
**UNIVERSITY SCHOOL OF OPEN LEARNING**  
**PANJAB UNIVERSITY, CHANDIGARH**



VALUE ADDED COURSE / SKILL-ENHANCEMENT COURSE 2023-24  
for IMPLEMENTATION UNDER NEP-2020

VAC-I : DATA ANALYSIS AND VISUALIZATION USING MS-EXCEL

Total Lectures: 30 hours .....3 hours per week  
2 Credits Course (1 Theory + 1 Practical)  
Assessment = 100 Marks (Theory (50 Marks) + Practical (50 Marks))  
Theory Marks = ~~Attendance~~ (10 Marks) and Assignment (40)  
**Internal Assessment** 75% Attendance is mandatory

- Notes: 1. A candidate shall offer this subject in UG class.  
2. Students are to be engaged to 3 hours of teaching per week (1 lecture for theory and 2 lectures for practical).

In today's world of digitization, data plays an important role. Statistics is a field of study in which different operations are done on data to get a required outcome. The operations done on data are collection, organization, analysis, and interpretation. It is one of the most commonly taken up studies as it has practical applications in different areas like business problems, scientific problems, and social problems. Data analytical skills can be developed with the help of MS-Excel. MS-Excel is used for the manipulation and statistical analysis of data. This course is particularly useful for students and researchers in various fields for quantitative analysis of complex data of both univariate and multivariate procedures.

**Learning Outcomes:**

After studying this course, students should be able to:

- understand how to solve Real Life Problems with **Microsoft Excel**.
- learn **Advanced Functions** in simple & understandable language.
- enter basic data into MS-Excel
- use **Microsoft Excel** to perform **statistical** calculations easily without learning long formulas and equations.

This may be sent to Chairperson, Deptt. of Statistics for consideration, please.

- DRG

16/5/23

Chairperson  
University School of Open Learning  
Panjab University, Chandigarh

OSM  
ARG  
16/5/23  
12/6/5/23  
Chairperson  
Deptt of Statistics

16/5/23



- familiarize with basic concepts of statistics like Data collection, classification and presentation.
- create and edit graphical displays of data
- conduct descriptive statistics.

### WHO CAN PURSUE?

It's suitable for those with basic knowledge of Mathematics. A basic knowledge of statistics will be helpful. Those who have limited mathematical background will be able to undertake appropriate analyses of their data.

This course will help students to develop soft skills related to statistics in a short span of time and after completing the course, students are provided with a certificate of completion of that course.

**No. of students can enroll in this course: ANY**

**Mode of conduct: Blended Mode**

**Material Provided to Students: PPT's, pdf notes and Books reference.**

### Instructions for Examiner:

The paper will be of 100 Marks which is divided into three parts 10 Marks for Internal Assessment, 40 Marks for external written examination and 50 marks for practical exams.

External question paper will have 2 units. First question is compulsory and will be of short answer type covering the entire syllabus. Four questions will be set from each unit and candidate will be required to attempt five questions in all including the first compulsory question and two questions from each unit. Each question carries 8 Marks.

Time duration for Exams will be 3 hours.

Practical Exams: distribution of 50 Marks = 15 Marks Viva-voce + 25 Marks Written Practical Exam + 10 Marks Practical File.

Time duration for 25 Marks Written Practical Exam will be 3 hours.

Unit	Topic Name	Description of Topic
I	Introduction to MS-Excel	<ul style="list-style-type: none"> <li>• Introduction to MS-Excel</li> <li>• Create Worksheets and Workbooks.</li> <li>• Entering Text and Numbers</li> <li>• Search for data within a workbook</li> <li>• Format Worksheets and Workbooks</li> </ul>

		<ul style="list-style-type: none"> <li>• Insert headers and footers</li> <li>• Customize Options and Views for Worksheets and Workbooks</li> <li>• Create and Manage Tables</li> <li>• Filter and Sort a Table</li> <li>• Perform Operations with Formulas and Functions</li> <li>• Summarize Data by using Functions</li> <li>• Perform Conditional Operations by using Functions</li> <li>• Create and Format Charts</li> <li>• Look up data by using Functions</li> <li>• Generating Random Numbers</li> </ul>
I	<b>Introduction of Statistics</b>	<ul style="list-style-type: none"> <li>• Overview of Statistics</li> <li>• Introduction of Population, Sample, Variables, Attributes</li> <li>• Measurement Scales: Nature of Variables</li> <li>• Data Classification</li> </ul>
I	<b>Visualization Techniques</b>	<ul style="list-style-type: none"> <li>• Data Representation</li> <li>• Bar Charts, Stacked Bar, Line diagram, Histogram, Pie diagram, Box Plot, Multiple Box Plot, Stem and Leaf diagram</li> <li>• Create Charts using EXCEL</li> </ul>
II	<b>Descriptive Statistics</b>	<ul style="list-style-type: none"> <li>• Measures of Central Tendency: Mean, Median, Mode, Quartiles, Deciles, Percentiles, Harmonic Mean, Geometric Mean, Maximum and Minimum Value.</li> <li>• Measures of Dispersion</li> <li>• Skewness</li> <li>• Kurtosis</li> </ul>
II	<b>Bivariate</b>	<ul style="list-style-type: none"> <li>• Correlation and Simple Linear</li> </ul>

	<b>Techniques</b>	<b>Regression</b>
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### REFERENCES

1. N. R. Draper and H. Smith (1998): Applied Regression Analysis (3rd ed). New York: Wiley.
2. S. C. Gupta, and V.K. Kapoor (2014): Fundamentals of Applied Statistics, Sultan Chand & Sons, Delhi.
3. A. M. Goon, M. K. Gupta and B. Das Gupta, Fundamentals of Statistics, Vol. I and II, World Press, Calcutta, (2013).
4. C.R. Kothari, Research Methodology: Methods and Techniques, Wiley Eastern Ltd.(2009).
5. Singh, D. and Chaudhary, F.S.): Theory and Analysis of Sample Survey Designs, New Age International Publishers(1986).
6. P.S.S. Sundar Rao and J.Richard: Introduction to Biostatistics and Research Methods, 4th Edi., PHI learning Pvt. Ltd.(2011).
7. I. Miller, and M. Miller, (2004), Mathematical Statistics ( Seventh Edition), Pearson
8. W.W. Daniel, (2005), Biostatistics : A foundation for analysis in the Health Sciences, John Wiley.
9. John E. Freund and Frank, I Williams: Modern Business Statistics, Prentice Hall.

*Dr. Richa Sharma*  
16/5/2023.

**Dr. Richa Sharma**  
**Coordinator**  
**Department of Statistics**  
**USOL, Panjab University**



Appendix to  
 1568  
 Sten No. LXVII  
 2383/RM  
 01-06-2023



UNIVERSITY INSTITUTE OF FASHION  
 TECHNOLOGY AND VOCATIONAL DEVELOPMENT,  
 PANJAB UNIVERSITY, CHANDIGARH



☎ 2544086, 6156  
 Email uift@pu.ac.in

24/6/23

D-IFT/23/6

Date: 31/05/2023

**Subject: Eligibility for admission to M.Sc. Fashion & Lifestyle Technology w.e.f. 2023-24.**

Sir/Madam,

University Institute of Fashion Technology & Vocational Development proposed the following admission criteria for M.Sc. Fashion & Lifestyle Technology w.e.f. 2023-24. The PG BOS of Fashion Technology & Fashion Designing has already approved the same. The case is now sent to the competent authority for kind consideration and further approval. Kindly allow the changes in the eligibility for admission to M.Sc. Fashion & Lifestyle Technology Course (being run at UIFT&VD).

<u>EXISTING</u>	<u>PROPOSED</u>
Passed B.Sc. Fashion & Lifestyle Technology from UIFT, P.U.	Passed B.Sc. Fashion & Lifestyle Technology from UIFT, P.U.
<b>Lateral Entry:</b> Lateral Entry will be allowed in case any seats are left vacant. Eligibility is as under :- Passed B.Sc. (Fashion Designing) examination with at least 50% marks in aggregate from PU, or an examination from any other university recognized as equivalent thereto.	<b>Lateral Entry:</b> Lateral Entry will be allowed in case any seats are left vacant. Eligibility is as under :- Qualified B.Sc./ B.Voc./ B.Tech./ B.Des. in Fashion Design/Designing/Technology examination with at least 50% marks in aggregate from P.U., or an examination from any other university recognized as equivalent thereto.
Based on Aptitude Test*** Aptitude Test: 45% Academics: 40% Group Discussion: 05% Interview: 10%	Lateral Entry will be based on Aptitude Test*** Aptitude Test: 45% Academics: 40% Group Discussion: 05% Interview: 10%

\*\*\*For M.Sc.: Aptitude test will comprise of **written test** to evaluate general ability and subject knowledge and **practical test** to evaluate creative ability. **Creative ability test:** Material list will be provided in advance so that the candidates can bring their own material for the test. Group Discussion will be on the topics related to Fashion and Lifestyle Technology. Candidate must score at least 50% marks in aggregate (Academics + Aptitude Test + Preference Criteria + Interview+ Group Discussion).  
 Submitted for approval, please.

Yours sincerely,

*[Signature]*  
 Chairperson  
 University Institute of Fashion Technology,  
 and Vocational Development  
 Panjab University, Chandigarh

The Chairperson, UIFT & VD is requested to provide the copy of minutes of PG BOS in Fashion Technology & Fashion Designing in which the <sup>stem regarding</sup> change in eligibility for admission to M.Sc. Fashion & Lifestyle Technology is considered, pl.

Deputy Registrar (G.)

*[Signature]*  
 05/11/23  
 ARG (on leave)  
 Chairperson  
 UIFT & VD

*[Signature]*  
 11/6/23

*[Handwritten notes]*



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Appendix to Item No  
LXVIII

Environment Science-Value Added Course (VAC)

**PANJAB UNIVERSITY CHANDIGARH- 160014  
(INDIA)**

(Estded. under the Panjab University Act VII of 1947-enacted by the Govt. of  
India)



**FACULTY OF SCIENCE  
UNDERGRADUATE PROGRAMS  
(4 Years Programme as per NEP-2020)**

**SYLLABI**

*of*

**Value Added Course (VAC)**

**in**

**Environment Science**

**For**

**I<sup>st</sup> & II<sup>nd</sup> Semester**

**Department of Environment Studies,  
Panjab University, Chandigarh**

**Academic Session (2023-2024)**



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*Environment Science-Value Added Course (VAC)*

**PREAMBLE**

The Department of Environmental Studies is one of the vital departments of the Panjab University, Chandigarh that runs multidisciplinary Masters course with focus on the emerging areas of Environmental Sciences. The course content is kept up-to-date with the latest development in the area of study. The theory, practical, project work and training activities of this programme prepares the student to acquire knowledge, skills and expertise on specified subjects along with the integrated knowledge of all relevant disciplines. The course provides valuable hands-on experience. The students are regularly exposed to various aspects of industry requiring environmental attention. The department also conducts educational trips to the related production units and research institutions.

The Department has achieved good visibility in India and abroad. The faculty and the research students have fetched many national and international awards. Faculty members have been members of editorial boards of various national and international journals. Faculty members have been publishing research papers in relatively high impact journals, and supervising students for research in a variety of environmental aspects.



The Department has suitably developed the laboratory facilities with many analytical equipments for teaching, demonstration and research. It has its own library with latest books and reading material in the field of Ecology, Pollution, Environment Science, Waste Management, Environment Biology, Environment Management, Bio-statistics, Research Methodology, Biodiversity and Conservation, Environmental Biotechnology, Geo-environment, and Biological Sciences. The facility of Visual aids like LCD projector, Slide and Over-head projectors are available for imparting instructions to the students. Students are encouraged to use these aids even for their seminars. With the funds from UGC and DST, the department has procured equipments like HPLC, UV-VIS Spectrophotometer, BOD Incubator, Air Quality Monitor, Thermo-hygrometer, Dust track, and Gas Analyzer.

The department has 46 students enrolled in its Ph.D course. To date, the Department has produced a number of NET qualified students. The students who have successfully completed the course are placed very well in various reputed institutes and companies both in India and abroad.

**ENVIRONMENTAL SCIENCE****VALUE ADDED COURSE****COURSE STRUCTURE**

SEMESTER I (Credits = 02, Marks = 50)		SEMESTER II (Credits = 02, Marks = 50)	
COURSE CODE	COURSE TITLE	COURSE CODE	COURSE TITLE
BENV-VAC-1	ENVIRONMENTAL CONCEPTS	BENV-VAC-2	ENVIRONMENTAL CONVERSATION & MANAGEMENT

**CREDIT DISTRIBUTION**

COURSE CODE & TITLE	CREDITS	CREDIT DISTRIBUTION OF COURSE			ELIGIBILITY CRITERIA	PRE-REQUISITE OF THE COURSE
		LECTURE	TUTORIAL	PRACTICAL/ FIELD WORK		
BENV-VAC-1: ENVIRONMENTAL CONCEPTS	02	02	0	0	PASS IN CLASS 12 <sup>TH</sup>	NIL
BENV-VAC-2: ENVIRONMENTAL CONCEPTS	02	02	0	0	PASS IN CLASS 12 <sup>TH</sup>	NIL

**IMPORTANT NOTE:**

1. Course will be offered by Department of Environment Studies for students of other departments.
2. Course will be offered by the Department of Environment Studies, only if, a minimum of 10 students enrol for the course.
3. The evaluation criteria for Semester I and Semester II VACs will be the same.

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*Environment Science-Value Added Course (VAC)*

**PANJAB UNIVERSITY, CHANDIGARH**

**OUTLINES OF TESTS & SYLLABI FOR VALUE ADDED COURSE (VAC) IN  
ENVIRONMENT SCIENCE, EXAMINATION: 2023-2024  
(4 Years Programme as per NEP-2020)**

**OUTLINES OF TESTS  
VALUE ADDED COURSE**

**Semester I**

<b>Theory Paper:</b> BENV-VAC-1	Environmental Concepts	50 Marks (02 credits)
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<b>Practical:</b> BENV-VAC-1	Environmental Concepts	0 Marks (0 credits)
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**Semester II**

<b>Theory Paper:</b> BENV-VAC-2	Environment Conservation and Management	50 Marks (02 credits)
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<b>Practical:</b> BENV-VAC-2	Environment Conservation and Management	0 Marks (0 credits)
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**GUIDELINES:**

1. Course will be offered by Department of Environment Studies for students of other departments.
2. Course will be offered by the Department of Environment Studies, only if, a minimum of 10 students enrol for the course.

**EVALUATION**

1. There shall be one Mid Term Examination viz. internal assessment of **20% of the total marks (10 marks)** in each semester.
2. End-semester examination will be of **80% of the total marks (40 marks)**.
3. The final examination shall be of **3 hours duration**.

**PATTERN OF END-SEMESTER QUESTION PAPER**

- (i) There will be **Five** questions in all. The candidate will be asked to attempt **three** questions.
- (ii) One **Compulsory** question (consisting of short answer type questions) covering whole syllabus. There will be no choice in this question. First question will be of **15 marks**.
- (iii) The remaining **Four** questions will be in **Two UNITS**, each unit comprising of two questions. The questions will be of equal weightage (**12.5 marks**).
- (iv) Students will attempt one question from each **UNIT** and the compulsory question.

**COMPUTATION OF SEMESTER GRADE POINT AVERAGE (SGPA)**

COURSE	CREDIT	GRADE POINT	CREDIT POINT
	2	$X=(\text{MARKS}\%/10)$	$2 \times X$

**SGPA=TOTAL CREDIT POINTS IN THE SEMESTER/TOTAL CREDITS**

**Grade and Grade Points:**

Letter Grade	O	A <sup>+</sup>	A	B <sup>+</sup>	B	C	P	F	Ab
Grade Point	10	9	8	7	6	5	4	0	0

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*Environment Science-Value Added Course (VAC)*

**VALUE ADDED COURSE**  
**IN**  
**ENVIRONMENT EDUCATION**  
**(4 Years Programme as per NEP-2020)**

**SEMESTER I**

**ENVIRONMENT SCIENCE**  
**SEMESTER I**  
**VALUE ADDED COURSE**

Course Title: Environmental Concepts  
 Course Code: BENV-VAC-1

Credits: 02  
 Contact hours: 30 Hours

**THEORY**

*Learning objectives: The course intends to make the students understand:*

1. Concepts and structure of our environment.
2. Structure of our ecosystem, services provided and their significance to humans.
3. Biodiversity and its importance.
4. Types of pollution and measures for their control.

*Course outcomes: After completion of the course, the students will be able to*

1. Develop critical thinking on various dimensions of the environment.
2. Develop pro-environmental attitude among students so that they can adopt and propagate for eco-friendly lifestyle for environmental protection and conservation of biodiversity.
3. Develop scientific attitude to identify relevant environmental issues, analyse the various underlying causes, evaluate the prices and policies, and develop framework to make informed decisions.

**Unit 1: Introduction to Environment Science, Natural Resources, Ecosystem and Biodiversity** **15 hours**

- 1.1. Scope, importance and multidisciplinary nature of Environmental Science
- 1.2. Natural resources—concept, classification, distribution, causes of depletion and conservation
- 1.3. Concept of ecosystem, trophic structure and function of an ecosystem,
- 1.4 Major Ecosystems (terrestrial, aquatic and artificial)— biotic interactions, biomes and ecological succession.
- 1.5 Biodiversity—definition, values, hotspots of biodiversity, threats, causes and effects of biodiversity loss

**Unit 2: Climate Change and Environmental issues**

**15 Hours**

- 2.1 Climate Change: causes, Consequences, Green House Effect and Global Warming
- 2.2 Environment pollution: Sources, types of pollution, causes, consequences and control (Air, Water, Soil & noise, microbial)
- 2.3 Radiations, Nuclear and Technological Hazards

## 2.4 Population Growth, Disaster, Pandemic and Human Health Risks

## ESSENTIAL READINGS

1. Cunningham, W. P. & Cunningham, M.A. (2009). *Environmental science: a global concern*. Glencoe/McGraw-Hill school pub.
2. Botkin, D. B. & Keller, E. A. (2005). *Environmental science: earth as a living planet*. John Wiley & sons.
3. Keen, M., Brown, V. A., Dybal, R. (2005). *Environmental science: toward a sustainable future* (1st edition). Routledge.
4. Bharucha, E. (2019). *Text Book for environmental studies*. Universities press (India) private limited.
5. Kaushik & Kaushik. (2018). *Perspectives in environmental studies*. New age international Publishers.
6. Basu, M. & Xavier, S. (2018). *Fundamental of environment studies*. Cambridge university press, Kolkata.
7. Vanramliana *et al.*, (2015). *A text book of environmental science*. Scientific book centre, Guwahati.
8. Daniel, D.C. (2014.) *Environment science*. Jones and bartlett publishers, London.
9. Prasad, G. (2008). *Handbook of environment science*. Discovery publishing house, New Delhi.
10. Rajagopalan (2019). *Environment studies: from crisis to cure*. Oxford university press, New Delhi.
11. Saha, T.K. (2013). *Ecology and environmental biology*. Books & allied (p) Ltd. Kolkata.
12. Santra, S.C. (2018). *Environment science*. New Central book agency (P) Ltd. Kolkata.
13. Sharma, P.D. (2017). *Ecology and environment*. (10<sup>th</sup> Revised Edition), Rastogi Publication.
14. Allaby, M. (2019). *Basics of environmental science*, Routledge, London.

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*Environment Science-Value Added Course (VAC)*

**VALUE ADDED COURSE**  
**IN**  
**ENVIRONMENT EDUCATION**  
**(4 Years Programme as per NEP-2020)**

**SEMESTER II**



## ENVIRONMENT SCIENCE SEMESTER II

### VALUE ADDED COURSE

Course Title: Environment Conservation and Management  
Course Code: BENV-VAC-2

Credits: 02  
Contact hours: 30 hours

### THEORY

*Learning objectives: The course intends to make the students understand:*

1. Concepts and design of various environment conservation and management strategies.
2. Environmental laws and initiatives taken by the government to protect natural resources and environment

*Course outcomes: After completion of the course, the students will be able to*

1. Develop scientific attitude to identify environmental issues, analyse the various underlying causes, evaluate policies, and develop innovative start-ups to alleviate the environmental problems.
2. Collaborate with environmental engineers, planners, technicians, and other specialists, and experts to address environmental problems

#### Unit 1: Environment Conservation and Regulation

15 hours

- 1.1. Concepts of environment conservation: aim, need, to conserve natural resources and biodiversity —soil water, air, wildlife and forests
- 1.2. Environment policies and legislation: History of international climate change policies. United Nation Framework Convention on climate change (UNFCCC), The United Nations Conference on Environment and Development, Intergovernmental Panel on Climate Change (IPCC), Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act. International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD), Agenda 21
- 1.3 Conservation of biodiversity: *In-situ* and *Ex-situ* conservation of biodiversity; Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context

**Unit 2: Environment Management****15 hours**

- 2.1 Environmental movements: Chipko, Silent valley, Bishnois of Rajasthan
- 2.2 Solid and hazardous waste management: Classification, salient features as per Indian legislation, collection, storage, transport and disposal; Control measures of urban and industrial waste
- 2.3 Waste water treatment systems: Principle, design and working and importance
- 2.4 Air quality monitoring and Modelling: Definition, design and working and importance
- 2.5 Remote sensing and GIS in environment management: Disaster management: floods, earthquake, cyclones and landslides.
- 2.6 Sustainable alternatives: Definition, examples from Indian case studies: Bioremediation technologies, landfills.

**ESSENTIAL READINGS**

1. Divan, S. & Rosencranz, A. (2002). *Environmental law and policy in India*. Oxford university press.
2. Edward, G.R. & Pandit, M.K. (2013). *Threats from India's himalaya dams*. Science, 339: 36-37.
3. Gleeson, B. & Low, N. (eds.) (1999). *Global ethics and environment*. Routledge.
4. Glejck, P. H. (1993). *Water in crisis. pacific institute for studies in dev., environment & security*. Stockholm Env. Institute, Oxford university press.
5. Groom, M.J., Meffe, G.K. & Carroll, C. R. (2006). *Principles of conservation biology*. Sunderland: sinauer associates.
6. McCully, P. (1996). *Rivers no more: the environmental effects of dams*. Zed books (pp. 29-64).
7. Nandini, N. (2019). *A text book on environmental studies (AECC)*. Sapna book house, Bengaluru.
8. Odum, E.P., Odum, H.T. & Andrews, J. (1971). *Fundamentals of ecology*. Philadelphia: Saunders.
9. Pepper, I.L, Gerba, C.P. & Brusseau, M.L. (2011). *Environmental and pollution science*. Academic press.
10. Rao, M.N. & Datta, A.K. (1987). *Waste water treatment*. Oxford and IBH publishing Co. pvt. ltd.
11. Raven, P.H., Hassenzahl, D.M. & Berg, L.R. (2012). *Environment* (8<sup>th</sup> edition). John wiley & sons.
12. Sengupta, R. (2003). *Ecology and economics: an approach to sustainable development*. Oxford university press.
13. Singh, J.S., Singh, S.P. and Gupta, S.R. (2014). *Ecology, environmental science and conservation*. S. Chand publishing, New Delhi.
14. Sodhi, N.S., Gibson, L. & Raven, P.H. (eds). (2013). *Conservation Biology: voices from the tropics*. John Wiley & Sons.

