

CONTENTS

SR.NO.	PARTICULARS	PAGE NO.
-	Preface	(i)
-	Acknowledgements	(iii)
1.	Salient features of the Diploma Programme	1
2.	Employment Opportunities	2
3.	Competency Profile	3
4.	Deriving curriculum areas from competency profile	4
5.	Abstract of Curriculum Areas	5
6.	Horizontal and Vertical Organization of the subjects	6
7.	Study and Evaluation Scheme	7
8.	Detailed Contents of various Subjects	

FIRST SEMESTER

1.1	Communication Skills – I	13
1.2	Drawing and Rendering – I	16
1.3	Basic Design – I	17
1.4	Colour and Texture – I	20
1.5	Introduction to Textile Processes – I	22
1.6	Structural Fabric Design – I	23
1.7	Art Appreciation in Indian Traditional Textile Design – I	25

SECOND SEMESTER

2.1	Communication Skills – II	28
2.2	Drawing and Rendering – II	32
2.3	Basic Design – II	33
2.4	Colour and Texture – II	36
2.5	Introduction to Textile Processes – II	38
2.6	Structural fabric Design – II	40
2.7	Art Appreciation in Indian Traditional Textile Design – II	42
	Ecology and Environmental Awareness Camp	45

THIRD SEMESTER

3.1	Textile Calculations	46
3.2	Dyeing Technology – I	48
3.3	Fabric Manufacture – I	50
3.4	Structural Fabric Design – III	52
3.5	Printing Technology – I	54
3.6	Basics of Information Technology	56
	Entrepreneurial Awareness Camp	60(a)

FOURTH SEMESTER

4.1	Dyeing Technology – II	61
4.2	Fabric Manufacture – II	63
4.3	Structural Fabric Design – IV	65
4.4	Printing Technology – II	67
4.5	CAD in Textile Design – I	69
4.6	Product Design	70

FIFTH SEMESTER

5.1	Structural Fabric Design – V	71
5.2	Fabric Manufacture – III	73
5.3	CAD in Textile Design – II	75
5.4	Testing and Quality Control – I	77
5.5	Textile Finishing	79
5.6	Management and Costing	81

SIXTH SEMESTER

6.1	Knitted Design	84
6.2	CAD in Textile Design – III	86
6.3	Testing and Quality Control – II	88
6.4	Garment Design	90
6.5	Major Project Work	92
9.	Resource Requirements	93
10.	Recommendations for effective Implementation of Curriculum	102
11.	List of Participants	103

PREFACE

Curriculum document is a comprehensive plan of any educational programme. It is also one of the means for bringing about qualitative improvement in any programme, Under the Chairmanship of financial Commissioner and Principal Secretary of Technical Education, Government of Haryana, a one day workshop was organized at the National Institute of Technical Teachers' Training and Research (NITTTR formerly TTTI), Chandigarh on 21 January, 2003 in which the senior officers from Directorate of Technical Education/Board of Technical Education Haryana, Principals and Head of Departments from Polytechnics of Haryana and faculty from NITTTR, Chandigarh participated and deliberated upon various issues, for bringing about qualitative improvement in the technician education system in the State of Haryana. One of the outstanding and unanimous decisions of the above workshop was to review the curricula of all the diploma programmes being offered in the State of Haryana especially with a view to include appropriate levels of courses in applied sciences, mathematics, computers, engineering sciences and courses relevant to the present day environment of changing technologies.

As a follow-up of the above workshop, this institute took-up the revision of all the curricula of various diploma programmes in Haryana and it was decided that to begin with, this institute would work-out the course structure and detailed contents for the first years of various diploma programmes to enable Haryana polytechnics to implement these from the current session 2003-2004 in order to catch up with the technological developments taking place in the industry/field organizations.

A series of workshops was held at NITTTR, Chandigarh in the months of May-June 2003 and 1st year curriculum of various diploma programmes was handed over to the Haryana Directorate for the implementation from July 2003. This was followed by another series of workshops for revision of 2nd year and 3rd year curricula of all these courses.

The document is based on the feed back from industry/field organizations for wage and self employment opportunities for the diploma holders in **Textile Design** in large, medium and small scale industries. While suggesting employment opportunities for the diploma holders, the three sectors i.e. primary, secondary and tertiary sectors were kept in mind. The document contains the study and evaluation scheme and detailed contents for all the three years to enable the Haryana Polytechnics to implement the revised curriculum from the following year itself.

While working out the detailed contents and study and evaluation scheme, the following important elements have been kept in mind:

- i) Major employment opportunities of the diploma holders

- ii) Competency profile of the diploma holders with a view to meet the changing needs of the technological developments and requirements of the employment.
- iii) Vertical and horizontal mobility of the students for their professional growth.
- iv) A rational approach for the curricula of diploma programmes in engineering and technology in the state of Haryana.

The document is an outcome of the feedback received by this institute from the experts during the workshop who represented industry, institutes of higher education, research and development organizations, polytechnic faculty and NITTTR faculty.

The revised curriculum aims at developing desired professional, managerial and communication skills as per the requirement of the world of work. We hope that this revision will prove useful in turning out more competent diploma holders in **Textile Design**. The success of this curriculum depends upon its effective implementation and it is expected that the managers of polytechnic system including subject teachers will make efforts to create better facilities, develop linkages with the world of work and foster conducive environment as per recommendations made in the curriculum document.

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SK Gupta
Coordinator

1. SALIENT FEATURES OF THE DIPLOMA PROGRAMME IN TEXTILE DESIGN

1. Name of the Programme : Diploma programme in Textile Design
2. Duration of the Programme ; Three Years
3. Entry Qualifications : Matriculation or as prescribed by the State Board of Technical Education, Haryana
4. Intake ; 30 or as prescribed by the State Board of Technical Education, Haryana
5. Pattern of the Programme : Semester system (Each semester is of the 16 Weeks and each week has 36-40 contact hours for academic work).

2. EMPLOYMENT OPPORTUNITIES OF DIPLOMA HOLDERS IN TEXTILE DESIGN

Diploma holders in textile design may find employment as:

i) Textile designers in textile mills, processing houses and garment export houses for:

- ▶ Developing designs for woven/printed fabric
- ▶ Developing graphic designs
- ▶ Colour matching and sample production
- ▶ Developing a library of designs
- ▶ Preparation of shade cards
- ▶ Reproducing fabric from given sample
- ▶ Woven label designs
- ▶ Developing computer aided textile designs

ii) Self employed/freelancers for:

- ▶ Preparing designs for woven/printed fabrics
- ▶ Preparation of designs for special fabrics, embroidery and wall hangings
- ▶ Preparation of illustrations for dress designers
- ▶ Preparation of designs for floor coverings, handloom, dobby, jacquard, tappet, terry towel, furnishing fabrics, khadi and hand printed textiles etc.
- ▶ Developing graphic designs

3. COMPETENCY PROFILE OF DIPLOMA HOLDERS IN TEXTILE DESIGN

Keeping in view job opportunities of diploma holders in textile design, following competency profile is arrived at:

1. Ability to calculate textile parameters and fabric dimensions
2. Ability to observe and draw various objects from their surroundings in perspective with 3 dimensional effects to create designs based on their shapes, colours and textures
3. Understanding of the concepts and principles of designs
4. Understanding of principles of colour, various techniques to create textures, colour schemes and colour ways
5. Appreciation of traditional Indian Textiles and Art
6. Basic knowledge of textile materials and fabric constructions
7. Competencies for production of woven/knitted designs
8. Competencies on dyeing and printing
9. Competency in making use of computer for developing various textile designs
10. Competency to estimate the end product cost
11. Awareness regarding entrepreneurial support system and basic principles of management, ecology and environment, safety measures
12. Development of designs as per customers' requirement
13. Competency to inspect the end product and ensure its quality
14. Knowledge of interpersonal relations and skills in communication

4. DERIVING CURRICULUM AREAS FROM COMPETENCY PROFILE

Sr. No.	Competency Profile	Curriculum Area
1.	Ability to calculate textile parameters and fabric dimensions.	Textile calculations
2.	Ability to observe and draw various objects from their surroundings in perspective with 3 dimensional effect to create designs based on their shapes, colours and textures.	Drawing and Rendering nature study, Object Drawing and Sketches
3.	Understanding of the concepts and principles of designs	Basic Design (Fundamental of design, various types of motifs, their placements, value of a space, stylization, developing and enlarging design with combination of different colour and weaves.
4.	Understanding of principles of colour, various techniques to create textures, colour schemes and colour ways	Colour and Texture (Introduction to colour theory, application of colour in designs to improve texture)
5.	Appreciation of traditional Indian Textiles and Art	History of Indian textiles and art appreciation
6.	Basic knowledge of textile materials and fabric constructions	-Textile Technology (Textile Materials, operational knowledge of looms and fabric construction) -Garment Design
7.	Competencies for production of woven/knitted designs	-Structural fabric design (Basic techniques of designing) -Knitted design
8.	Competencies on dyeing and printing	Dyeing and printing (classification of dye stuffs, methods and styles of dyeing and methods of printing)
9.	Competency in making use of computer for developing various textile designs	Computer Appreciation CAD in Textile Design
10.	Competency to estimate the product cost	Estimating and costing
11.	Awareness regarding entrepreneurial support system and basic principles of management, ecology and environment, safety measures	Professional studies (Entrepreneurial system, basic principles of management, environment education and safety precautions)
12.	Development of designs as per customers' requirement	Major project (Application of knowledge and skills in creating new designs)
13.	Competency to inspect the end product and ensure its quality	Testing and quality control
14.	Knowledge of interpersonal relations and skills in communication	Communication skills Project Work

5. ABSTRACT OF CURRICULUM AREAS

a) General Studies

1. Communication skills
2. Ecology and Environmental Awareness
3. Entrepreneurial awareness management and costing
4. Basics of Information Technology

b) Basic areas

5. Drawing and Rendering
6. Basic Design
7. Colour and Texture
8. Introduction in textile processes
9. Art appreciation in Indian Traditional Textile Design
10. Textile calculations

c) Applied Areas

11. Structural fabric Design
12. Dyeing technology
13. Fabric manufacture
14. Printing technology
15. CAD for textile design
16. Product design
17. Testing and quality control
18. Textile finishing
19. Knitted design
20. Garment design
21. Dyeing and printing
22. Major project work

STUDY AND EVALUATION SCHEME FOR DIPLOMA PROGRAMME IN TEXTILE DESIGN

(FOR THE STATE OF HARYANA)

FIRST SEMESTER

Sr. No	Subject	STUDY SCHEME L T P Hrs/week			EVALUATION SCHEME						TOTAL MARKS
					Internal Assessment		External Assessment (Examination)				
					Theory	Practical	Written Papers		Practicals		
					Max. Marks	Max. Marks	Max. Marks	Hrs.	Max. Marks	Hrs.	
1.1*	Communication Skills-I(030011)	3	-	2	25	25	100	3	50(viva)	2	200
1.2	Drawing and Rendering-I	-	-	4	-	50	-	-	100	3	150
1.3	Basic design-I	-	-	4	-	50	-	-	100	3	150
1.4	Colour and Texture-I	-	-	4	-	50	-	-	100	3	150
1.5	Introduction of Textile Processes-I	3	-	4	25	25	100	3	100	3	250
1.6	Structural Fabric Design-I	3	-	6	25	25	100	3	100	3	250
1.7	Art Appreciation in Indian Traditional Textile Design-I	3	-	2	25	25	100	3	50	3	200
	# Student centered activities	-	-	4	-	25	-	-			25
	Total	12	-	28							1375

* Common with that of other diploma programmes.

It will comprise of co-curricular activities like games, hobby clubs, seminars, declamation contests, extension lectures, field visits, NCC, NSS and cultural activities.

SIXTH SEMESTER

Sr. No.	Subject (Code)	Study Scheme Hrs./Week L. T. P			Evaluation Scheme						Total
					Internal Assessment		External Scheme (Examination)				
					Theory	Practical	Written Paper		Practical		
					Max. Marks	Max. Marks	Max. Marks	Hrs.	Max. Marks	Hrs.	
6.1.	Knitted Design	4	-	4	25	50	100	3	100	3	275
6.2.	CAD in Textile Design-III	-	-	4	-	50	-	-	100	3	150
6.3.	Testing and Quality Control-II	4	-	4	25	50	100	3	100	3	275
6.4.	Garment Design	2	-	4	25	50	100	3	100	3	275
6.5.+	Major Project Work	-	-	10	-	100	-	-	200 (viva)	3	300
	Student Centered Activates	-	-	4	-	25	-	-	-	1	25
	Total	10	-	30							1300

+ It is suggested that major project work may be started after 5th semester.

8. DETAILED CONTENTS OF VARIOUS SUBJECTS

COMMUNICATION SKILLS – I

030011

L T P
3 - 2

Rationale

Interpersonal communication is a natural and necessary part of organizational life. Yet, communicating effectively can be challenging because of our inherent nature to assume, overreact to and misperceive what actually is happening. Poor communication or lack of communication is often cited as the cause of conflict and poor teamwork. In today's team-oriented workplace, managing communication and developing strategies for creating shared meaning are crucial to achieving results and creating successful organizations. The goal of the *Communicating Effectively in English* course is to produce civic-minded, competent communicators. To that end, students must demonstrate oral as well as written communication proficiency. These include organizational and interpersonal communication, public address and performance.

Objectives of Course in Communicating Effectively in English for the First Year (I & II Semesters) are: * *Understanding how communication works* * *Gaining active listening and responding skills* * *Understanding the importance of body language* * *Acquiring different strategies of reading texts* * *Increasing confidence by providing opportunities for oral and written expressions*

DETAILED CONTENTS FOR FIRST SEMESTER

48 Hrs

1. COMMUNICATION SKILLS 6 hrs

- 1.1 Verbal and Non-verbal Communication
- 1.2 Process of Communication
- 1.3 Barriers to Communication; Overcoming Strategies
- 1.4 Listening and Speaking Skills and Sub-Skills
- 2. Spoken English-Introduction, Features of Spoken English

(Note: This module is only for practice. This should not be included in the final examination)

2. DEVELOPING ORAL COMMUNICATION SKILLS 8 hrs

- 2.1 Greeting, Starting a Conversation
- 2.3 Introducing Oneself
- 2.4 Introducing Others
- 2.5 Leave Taking
- 2.6 Thanking, Wishing Well
- 2.7 Talking about Oneself
- 2.8 Talking about Likes and Dislikes

3. GRAMMAR AND USAGE 12 hrs

- 3.1 Punctuation
- 3.2 Articles-a, an, the

3.3 Framing Questions

3.4 Verbs-Classification: Main Verb, Auxiliary Verb, Transitive & Intransitive Verbs, Phrasal Verbs

3.5 Word Formation

4. WRITING SKILLS 10 hrs

4.1 Writing Paragraphs

4.2 Picture Composition

5. READING SKILLS 12 hrs

5.1 Vocabulary Enhancement

5.2 Techniques of Reading: Skimming, Scanning, Intensive and Extensive Reading

NOTE: The Reading Skills of the learners (along with vocabulary enhancement) will be through reading thematic articles/essays and/or stories.

1.1 DRAWING AND RENDERING-I

L T P
- - 4

RATIONALE

Diploma holders of textile design are required to draw various forms of objects from their surrounding and nature from design point of view e.g. flowers, leaves, fruits, plants, monuments etc. The translation of ideas into practice without the use of this graphic language is really beyond imagination. The students are supposed to go for outdoor sketching, also to the museums, gardens and monuments so that they can use various shapes, colours and textures in their designs.

DETAILED CONTENTS

Related theory for Practical Exercises	Practical Exercises
---	----------------------------

1. Understanding of different shapes of objects, opaque and transparent objects, glazed and rough surface; objects and use of different mediums	1.1 Draw different shaped objects like round (pot, kettle, ball etc), square (match box, duster, big and small boxes) and do them in the following medium by pencil shading
2. Study of Drapery	2.1 Different folds of drapery may be studied with any back ground by pencil shading
3. Memory drawing	3.1 Students may be asked to draw the above from memory

Note:

- 1. Students should be taken out for field visits, museums, exhibitions, market etc for clarifying the concepts and principles of this course as per requirement.**
- 2. There will be only a practical paper in this subject. The knowledge attained by students regarding related theory for practical exercises will be evaluated in the form of viva-voce during practical examinations.**

RECOMMENDED BOOKS

1. How to draw and paint by A Walter Foster; published by E.D. Galgotia and sons.
2. Flowers and still life by A Walter Foster; published by E.D. Galgotia and sons.
3. How to draw and paint textures of animals by A Walter Foster; published by E.D. Galgotia and sons.

1.3 BASIC DESIGN -I

L T P
- - 4

RATIONALE

Diploma holders of Textile Design are supposed to know the concepts of construction of designs in various styles by using various techniques according to the stability of various kinds of fabrics on paper with colours. Students are given understanding of all elements and concepts of design through various exercises. They are also taught use of different tools and art materials

DETAILED CONCEPTS

Related theory for practical exercises	Practical exercises
1. Basic elements of drawing and design;	1.1 Teacher will illustrate and discuss the

and understanding of principles of designs- Rhythm, balance, harmony, unity, emphasis, proportion, colour combination etc to form a good design	basic concepts of drawing and design with the help of pictures, paintings, designs etc which help the students to create suitable and perfect designs according to requirement
2. Introduction to tools and art-material	2.1 Teacher will teach students to handle each instrument and various art materials 2.2 Students will do simple exercises for handling T-square, set square, scale liner, compass liner etc with black pencils of various numbers (HB, 2B, 4B, 6B) and black ink
3. Understanding of construction of designs by using basic elements of drawing i.e. 'dot' and 'line'	3.1 Students will make motifs by using various types of liner, horizontal, vertical, diagonal, zigzag, curve, spiral etc in various styles- (thick, thin, dashed, dotted etc) in the following mediums) a) Black pencils (HB, 2B, 4B, 6B) b) Coloured Inks (Sketch Pens) c) Poster colours
4. Understanding of construction of designs by using basic geometrical shapes	4.1 Students will make motifs with the help of basic geometrical shapes – circle, square, triangle, rectangle etc in the following mediums a) Coloured inks b) Poster colours

Instructions for Practical Exercises	Practical Exercises
5. Construction of designs with various basic shapes to understand the concept of space organization	5.1 Students will make motifs of designs with various basic shapes (geometrical/free hand) in various small and big sizes in the following mediums a) Coloured papers/glazed papers b) Postal papers c) Black papers d) Brown papers
6. Exploration and experiment with liner and compass liner	6.1 Students will make motifs directly using liner and compass liner only with medium coloured inks or postal colours
7. Understanding of 3- dimensional effects in design	7.1 Students will make motifs by using basic shapes with tonal effects in the following mediums

	a) Black pencils (HB, 2B, 4B, 6B) b) Pencil colours/ Postal colours
8. Understanding of Texture effects	8.1 Students will make motifs by using various shapes with variations of texture effects in the following mediums: a) Black pencils (HB, 2B, 4B, 6B) b) water colours/ Postal colours/Inks

Note: Students should be taken out for field visits, museums, exhibitions, market etc for clarifying the concepts and principles of this course as per requirement. The knowledge attained by students regarding related theory for practical exercises will be evaluated in the form of viva-voce during practical examinations.

RECOMMENDED BOOKS

1. The Encyclopedia of Patterns and Motifs by Dorothy Bosom worth; Studio London
2. Designer's guide to colour 3 by Jeanne Alen; Chronicle Books, San Francisco
3. Fabric Painting by Jill Kennedy and Jane Varshall; BT Batsford Ltd., London
4. Designer's guide to Japanese Patterns by Jeanne Allen, Chronicle Books, san Francisco
5. Hand woven Fabrics of India by Jasleen Dhamija and Jyotindra Jain; Mapin Publishing Pvt. Ltd., Ahmedabad
6. Impression – A Classic collection of Textile Design by K Prakash; The Design Point, B-7, Shiv Krupa Apartments, Old Nagardas Road, Andheri (E) Bombay 400 069 (India)
7. Textile Designs- Idea and Applications by Joel Sokoelov; PBC International, Inc., New York
8. History of Textile Design by VA Shenai; Sevak Publications, Bombay 400 031
9. Fabric Art Heritage of India by Sukla Dass; Abhinav Publications
10. Fabric Painting made easy by Nancy Ward; Craft kaleidoscope, Chilton Book Company, Radnor, Pennsylvania

11. Wilson's Textile Design and colour by Z Grosicki, Universal Publishing Corporation, Bombay (India)
12. Textile Designs- 200 years of patterns fabrics arranged by motifs, colours, period and design by Susan Maller and Joost Elffers, Thames and Hudson
13. English and American Textiles from 1790 to the present by Mary Schoeser and Celia Rufey, Thames and Hudson

1.4 COLOUR AND TEXTURE – I

L	T	P
-	-	4

RATIONALE

Diploma holders of Textile Design should know the basic colour theory, to enhance the beauty of design. Colour plays a vital role in design. With various mediums like colour inks, crayon, water colours and poster colours etc, they are taught to create colour mixing, colour combinations and texture, creating various tonal effects

DETAILED COMMENTS

PRACTICAL EXERCISES

1. Introduction and demonstration of colour theory

2. Rainbow colours: make a chart of VIBGYOR colours
3. Prepare charts of classification of following colours
 - i) Primary colours: (red, yellow and blue) in various geometrical shapes
 - ii) Secondary colours: Orange, green, violet in circles
 - iii) Sub secondary tertiary colours: by mixing secondary and primary colours
4. Colour wheel (chromatic circle): Make a wheel showing primary, secondary, sub secondary intermediate colours
5. Achromatic Colours; Make a composition of different geometrical shapes in 12”*12” and paint it with achromatic colours giving it as many colours as possible
6. Monochromatic colours: Make a composition of floral designs in different blocks using as many shades of Monochromatic colours as possible
7. Polychromatic colours: Make a composition of abstract designs and fill it with polychromatic colours
8. Analogous Colour: make a floral design showing analogous colour scheme
9. Methods of modification of colours: Students will produce various colours by mixing different colours in different ratios e.g. yellow + blue=green

Note: Mixing and developing of different colours shades may be shown on computer so that the students are able to appreciate the importance of the subject

RECOMMENDED BOOKS

1. Computer colour-10,000 computer- Generated Process colours by Michael and Pat Rogondino; Angus and Robertson Publishers (Practical reference of colours processed by Mixing)
2. Colour in Theory and practice by HD Murray; Chapman and Hall Ltd., 37 Essex Street, WC 2, London 1952
3. An introduction to colour by Ralph M Evans, London Chapman and Hall Ltd.
4. Designer’s guide to colour 1, 2, 3,4,5,6 by Ikuyashi Shibukawa and Yum Takahashi; Chronicle Books, san Franscisco
5. Colour harmony- A guide to creative colour combinations by Hideaki Chijjiwa, Professor Musashino college of Art; India Book distributors

6. Variety fashion for freedom by SA Huisain, Trends Today, Bombay India
7. The 4-colour Person by Dr Max Luscher; Simon and Schuster
8. The colour handbook how to use colour in commerce and industry by EP Danger, Gower Publishing Company, Old Post Road, Brook Field Vermont 05036, USA

1.5 INTRODUCTION TO TEXTILE PROCESSES-I

L	T	P
3	-	4

RATIONALE

The students of textile design are supposed to have introductory knowledge and skill related to various fibers, yarns and fabrics. Thus in this subject students learn different fibers, yarns and fabrics and their manufacturing techniques.

DETAILED CONTENTS

Theory	Practical Exercises
1. Definition of fiber, yarn, fabric, classification of textiles fibers and physical and chemical identification of textile fibers (9 hrs)	1.1 Physical and chemical identification of different types of fibers: cotton, wool, silk, nylon, acrylic, polyester, viscose only

2. Source and production of cotton, wool, jute silk fibers their end uses and properties (10 hrs)	
3. Cotton, wool, silk, viscose rayon, nylon, polyester, acrylic polypropylene fibers, their uses and properties (12 hrs)	3.1 Qualitative and quantitative analysis of fibers and their blends
4. Grading of cotton and wool, staple fibre, filament and filament yarn (8 hrs)	4.1 Study of fibre cross section of cotton, wool, nylon, polyester, silk
5. Definition of moisture content, moisture region, absolute humidity, relative humidity, their relationship, effects of moisture on fibers (9 hrs)	

Note: **The student may be exposed to different types of textile manufacturing processes through textile mill visit so that they are able to understand the subject properly.**

RECOMMENDED BOOKS

1. Textile Fibre by Ghol and Valanslk
2. Yarn to fabric by Peter Schwarz
3. Fibre to fabric by BP Corbman
4. Textile fibers and their processings by KP Hess
5. Elementary Textile by Parul Bhatnagar, Abhishek Publisher, Chandigarh

1.6 STRUCTURAL FABRIC DESIGN – I

L	T	P
3	-	4

RATIONALE

The students of textile design are supposed to have knowledge and skill regarding various weaves and their construction. Hence, in this subject, students will learn different weaves, their method of employment to acquire competency for production of woven designs for different end uses.

DETAILED CONTENTS

(THEORY)

1. Introduction to fabric structure, explanation of woven structures and other fabric structures for example knitted, non-woven, bonded and embroidery, crochet and needle work. (8 hrs)

2. Definition of warp and weft, ends and picks, design, repeat of a design, crochet, needle work, draft, lifting or peg plan and denting order. (7 hrs)
3. Types of drafts and their uses in the manufacture of various fabrics (5 hrs)
4. Construction of weaves on point or graph paper in relation of draft, design and peg plan (Mill visit) (7 hrs)
5. Construction of plain weave and its derivatives in the form of simple matt or hopsack and ribbed structure (6 hrs)
6. Variegated hopsack or matt weave designs with warp face, weft face and reversible effects. Ornamentation of plain weave by different methods (5 hrs)
7. Construction of Twill weaves and their derivatives (10 hrs)
 - 7.1 Regular twills
 - 7.2 Pointed twills
 - 7.3 Broken twills
 - 7.4 Combined twills
 - 7.5 Fancy twills

PRACTICAL EXERCISES

Following weaves to be constructed on Graph paper

1. Construction of Plain weave
 - Rib weave- regular and irregular
 - Cord weave- regular and irregular
 - Hopsack weaves
2. Construction of Twill Weave
 - Warp faced twill
 - Weft faced twill
 - Reversible twill
3. Preparation of samples of plain and twill weave
 - (a) Napkin
 - Theme combination of basic weaves
 - Method hand loom
 - Placement checks or stripes
 - Colour scheme two colour for warp and two colour for weft
 - (b) Floor weaving
 - Theme Durrie weave
 - Placement geometrical design with the help of cup shuttle process at Horizontal strips

Warp- grey yarn count 2/4
Weft- cotton Jute, coir, wool

4. Identification of fabrics structures regarding weaving, knitting, crochet, embroidery, needle work etc.
5. Drafting and denting of warp for weaves studied in theory

Note: Concept of different weaves should be made clear with the help of samples and bobbin samples so that the students are able to identify different weaves in the fabric samples.

RECOMMENDED BOOKS

1. Grammar of Textile Design- Nisbet
2. Structural Fabric Design by – Kilby
3. Woven structures and design – Doris Goerner; British Textile Technology Group WIRA House, Leeds (UK)
4. Fibre to Fibre by Ghosh
5. Watson's Advance Textile design
6. Watson's Textile Design and colour

1.7 ART APPRECIATION IN INDIAN TRADITIONAL TEXTILE DESIGN – I

L	T	P
3	-	2

RATIONALE

Diploma holders of textile design are supposed to know the historical backgrounds of Indian traditional textiles i.e. woven, printed and embroidered and their development of design, fabric uses and technical details. In practical, students learn to prepare replicas, for which they should visit art galleries and museums.

DETAILED CONTENTS

Theory	Practical exercises
1. Study of Indian embroidered textiles with reference to textiles with reference to	

<ul style="list-style-type: none"> -Historical significance -Construction techniques -Styles -textures, colours and -Motifs -Centers of production a)Different Kashmir embroidery b)Panjabi Phulkari c)Himachal - Chamba Rumal d)Bihar and Bengal Suzni Kantha e)UP-Chikan kari f)Orissa-Applique work g)Karnataka-kasauti h)Gujarat and Rajasthan- Block printing i)Saree of India-embroidered(28 hrs) 	<p>1.1 Replication of designs (2 to 4 designs each)</p> <p>1.2 Assignments to students on designs</p> <p>1.3 Presentation of assignments</p> <p>1.4 Any one or more styles of embroidery to be executed</p>
<p>2. Study of woven textiles with reference to:</p> <ul style="list-style-type: none"> -Historical significance -Construction techniques (including raw materials) -Styles, colours and motifs -centers of production (a) Shawls (b) Brocades- Banaras, south Indian, Baluchar, Pathani (c) Tangail-Jamdani (d) Eastern region (e) Sarees of India – woven (20 hrs) 	<p>2.1 Replication of designs (2 to 4 designs each)</p> <p>2.2 Assignments to students on designs</p> <p>2.3 Presentation of assignments</p>

Note: Students should be taken out for field visits to various production centers to show the samples of above mentioned textiles (embroidered, woven, printed and dyed) They may also be taken for field visits to various places like art galleries/museums/religious places

Practically execute any one of the traditional designs in the contemporary form and prepare a file with replica or samples of the given topics.

RECOMMENDED BOOKS

1. Folk Embroidery of Himachal Pradesh by Subhashini Aryan
2. Ikat Textile of India by Chetna Desai
3. Indian Painted Textiles by Kamla Dev Chattopadya
4. Carpets of India by Marq

5. fabric Art Heritage of India by Sukla Das
6. Hand woven fabric of India by Jasleen Dhamija
7. Indian Sari by kamla Dev Chattopadya
8. Tie Dyed Textile of India by Veronica Muarphy
9. Hand woven fabrics of India by Jasleen Dhamija
10. Traditional Indian Textiles by John Gillow
11. Textile art of India by Kyoto Shoin
12. Hand painting textile for the home by Kaszz ball and Valcrie
13. Tie dyed textiles of India by Murphyd Crill
14. Masterpieces of Indian Textile by Rustam J Mehta
15. Kashmir shawls by All India handicrafts board
16. Everything you ever wanted to know about fabric painting by Jill Kennedy and Jane Vourell
17. Sarees of India- RTZ and Singh
18. Sarees of Madhya Pradesh
19. Embroidered Textiles of India, Calico Masam of India
20. Painted textiles of India, Calico Masam of India
21. Printed textiles of India, Calico Masam of India
22. Woven textiles of India, Calico Masam of India
23. Costumes and textiles of India by Parul Bhatnagar, Abhishek Publisher, Chandigarh.

COMMUNICATION SKILLS – II

030021

L T P
3 - 2

Rationale

Interpersonal communication is a natural and necessary part of organizational life. Yet communicating effectively can be challenging because of our inherent nature to assume, overreact to and misperceive what actually is happening. Poor or lack of communication is often cited as the cause of conflict and poor teamwork. In today's team-oriented workplace, managing communication and developing strategies for creating shared meaning are crucial to achieving results and creating successful organizations. The goal of the *Communicating Effectively in English* course is to produce civic-minded, competent communicators. To that end, students must demonstrate oral as well as written communication proficiency. These include organizational and interpersonal communication, public address and performance.

II SEMESTER 48 hrs

1. LISTENING COMPREHENSION 4hrs

- 1.1 Locating Main Ideas in a Listening Excerpt
- 1.2 Note-taking

2. ORAL COMMUNICATION SKILLS 14 hrs

- 2.1 Offering-Responding to Offers
- 2.2 Requesting-Responding to Requests
- 2.3 Congratulating
- 2.4 Expressing Sympathy and Condolences
- 2.5 Expressing Disappointments
- 2.6 Asking Questions-Polite Responses
- 2.7 Apologizing, Forgiving
- 2.8 Complaining
- 2.9 Persuading
- 2.10 Warning
- 2.11 Asking for and Giving Information
- 2.12 Giving Instructions
- 2.13 Getting and Giving Permission
- 2.14 Asking For and Giving Opinions

3. GRAMMAR AND USAGE 10hrs

- 3.1 Prepositions
- 3.2 Pronouns
- 3.3 Determiners
- 3.4 Conjunctions
- 3.5 Question and Question Tag
- 3.6 Tenses (Simple Present, Simple Past)
- *One chapter revising the topics discussed during the first semester.
(Punctuation, Articles, Framing questions, Verbs, Word formation)

4. WRITING SKILLS 10hrs

- 4.1 Writing Notice
- 4.2 Writing Circular
- 4.3 Writing a Memo
- 4.4 Agenda for a Meeting
- 4.5 Minutes of the Meeting
- 4.6 Telephonic Messages
- * Writing a paragraph will be a continuous exercise through out the session.
(Writing will be based on verbal stimuli, tables and graphs.)

5. READING SKILLS 10hrs

- 5.1 Vocabulary Enhancement
- 5.2 Techniques of reading: Skimming, Scanning, Intensive and Extensive Reading

NOTE: The Reading Skills of the learners (along with vocabulary enhancement) will be through reading thematic articles/essays and/or stories.

2.2 DRAWING AND RENDERING- II

L T P
- - 4

RATIONALE

Diploma holders of textile design are required to draw various forms of objects from their surroundings and nature from design point of view e.g flowers, leaves, fruits, plants, monuments etc. The translation of ideas into practice without the use of the graphic language is really beyond imagination. The students are supposed to go for outdoor sketching, also to the museums, gardens and monuments so that they can use various shapes, colours and textures in their designs.

DETAILED OCNTENTS

Related theory for Practical Exercises	Practical Exercises
1. Understanding of different shapes of objects, opaque and transparent objects, glazed and rough space; objects and use of different mediums	1.1 Draw different shaped objects like round (pot, kettle, ball etc.) square 9match box, duster big and small boxes) and make them by black pen and ink
2. Study of drapery	2.1 Different folds of drapery may be studied with any black ground by black pen and ink
3. Stylizing the different objects	3.1 Stylization of the objects studied in theory and then forming a composition

- Note: 1. Students should be taken out for field visits, museums, exhibitions, market etc. for clarifying the concepts and principles of this course as per requirement.
2. There will be only a practical paper in this subject. The knowledge attained by students regarding related theory for practical exercises will be evaluated in the form of viva voce during practical examinations.

RECOMMENDED BOOKS

1. How to draw and paint by A Walter Foster; published by ED Galgotia and sons
2. Flowers and still life by A Walter Foster; published by ED Galgotia and sons
3. How to draw and paint textures of animals by A Walter Foster; published by ED Galgotia and sons

2.3 BASIC DESIGN

L	T	P
-	-	4

RATIONALE

Diploma holders of Textile Design are supposed to know the concepts of construction of designs in various styles by using various techniques according to the suitability of various kinds of fabrics on paper with colours. Students are given understanding of all elements and concepts of design through various exercises. They are also taught use of different tools and materials.

DETAILED CONTENTS

Related theory for Practical Exercises	Practical Exercises
1. Understanding of collage work and its use in making designs	1.1 Students will make various motifs with coloured papers/glazed papers or pictures on given suggested themes: a) Composition of flowers b) Composition of animals c) Composition of birds d) Composition of flowers and birds
2. Understanding of various styles of designs: - Natural (realistic) - Conventional - Geometrical - Abstract - Traditional - Folk - Symbolic	2.1 Students will make motifs based on each style 2.2 Style on any theme by using pastel colours as a basic medium 2.3 With the reference of above motifs samples of following arrangement on quarter size drawing sheet will be prepared by students 1) All over arrangement 2) Border arrangement 3) Center arrangement 4) Corner arrangement
3. Change of one style of design to another	3.1 Students will practice to change designs from one style to another
4. Construction and placement of designs on various basis: - Drop designs (unit repeating designs) - Half drop designs - Drop reverse designs - Sateen based arranged designs (regular and irregular sateen arrangements)	4.1 Students will practice to make designs on various basis for various types of arrangements 4.2 Students will make 2-4 samples of designs on quarter sized drawing sheet on various arrangements with poster colours as a medium

5. Stripe and check designs	5.1 Students will make motifs of stripe and check designs suitable for printed and woven fabrics by using poster colours/sketch pens (inks) as medium
6. Enlargement and reduction of design	6.1 Students will draw motifs of various designs in enlarged and reduced sizes.

Note: Students should be taken out for field visits, museums, exhibitions, market etc. for clarifying the concepts and principles of this course as per requirement. The knowledge attained by students regarding related theory for practical exercises will be evaluated in the form of viva voce during practical examinations.

RECOMMENDED BOOKS

1. The Encyclopedia of Patterns and Motifs by Dorothy Bosomworth, Studio London
2. Designer's guide to colour 3 by Jeanne Alen; Chronicle Books, San Francisco
3. Fabric painting by Jill Kennedy and Jane Varshall; BT Batsford Ltd., London
4. Designer's guide to Japanese Patterns by Jeanne Allen, Chronicle Books, San Francisco
5. Hand woven fabrics of India by Jasleen Dhamija and Jyotindra Jain; mapin Publishing Pvt. Ltd. Ahmedabad
6. Impression – A classic collection of Textile Design by K Prakash, The Design Point, B-7, Shiv krupa Apartments, Old Nagaradas Road, Andheri (E) Bombay 400 069 (India)
7. Textile Designs- Idea and applications by Jeol Sokoelov; PBC International Inc. New York
8. History of Textile Design by VA Shenai, Sevak Publications, Bombay 400 031
9. Fabric Art heritage of India by Sukla Dass, Abhinav Publications
10. Fabric painting made easy by Nancy Ward; Craft Kaleidoscope, Chittron Book Company, Radnor, Pennsylvania
11. Watson's Textile Design and colour by Z Grosicki, Universal Publishing Corporation, Bombay (India)
12. Textile Designs- 200 years of patterns for printed fabrics arranged by Motifs, colors, period and design by Susan Maller and Joost Elffers; Thames and Hudson
13. English and American Textiles from 1790 to the present by Mary Schoeser and Celia Rufey, Thames and Hudson.

2.4 COLOUR AND TEXTURE – II

L	T	P
-	-	4

RATIONALE

Diploma holders of Textile Design should know the basics of colour theory, to enhance the beauty of design. Colour plays a vital role in design. With various mediums like coloured inks, crayon, water colours and poster colours etc. they are taught to create colour mixing, colour combinations and texture, creating various tonal effects.

DETAILED CONTENTS

PRACTICAL EXERCISES

1. Colour Terminology (colour measurements): Express the following words in colour with illustration and notes:
 - a) Hue
 - b) Value
 - c) Intensity
2. Colour schemes:
 - a) Contrast colour scheme: Introduction to various colour harmonies
 - b) Achromatic Colour Scheme: Arrange different geometrical shapes in 12*12” and paint it with the achromatic colour
 - c) Prepare Monochromatic and Polychromatic colour scheme
 - d) Analogous colour scheme: Transparent and opaque colours; positive and negative
 - e) Complementary colour scheme: Make designs showing different sets of complementary colours
 - f) Split Complementary : Double split complementary
 - g) Warm and cool colour
 - h) High key, middle key and low
3. Texture: Texture file with 25 different textures: Use of texture on cloth:
 - a) Marble
 - b) Spray
 - c) Rubber
 - d) Vegetable
 - e) Brushes
 - f) Coin
 - g) Smoke texture
4. Make a colour chart showing as many as colours you can at different values and intensity.
5. Instrumental colour measurement (may be demonstrated in institution/industry)

Note: Mixing and developing of different colour shades may be shown on computer so that the students are able to appreciate the importance of the subject.

RECOMMENDED BOOKS

1. Computer colour- 10,000 computer- Generated process colours by Michael and Pat Rogondino; Angus and Robertson Publishers (Practical reference of colours process by mixing)
2. Colour in theory and practice by HD Murray; Chapman and Hall Ltd. 37 Essex Street, WC 2, London 1952
3. An introduction to colour by Ralph M Evans, London Chapman and Hall Ltd.
4. Designer's guide to colour 1, 2, 3, 4, 5, 6 by Ikuyashi Shibukawa and Yum Takahashi; Chronicle Books, San Francisco
5. Colour Harmony- A guide to creative colour combinations by Hideaki Chijiwa, Professor Musashino College of Art; India Book Distributors
6. Variety Fashion for Freedom by SA Huisain; Trends Today, Bombay, India
7. The 4-colour Person by Dr Max Luscher; Simon and Schuster.
8. The colour handbook how to use the colour in Commerce and Industry by EP danger, Gower Publishing Company, Old Post Road, Brookfield Vermont 05036, USA.

2.5 INTRODUCTION TO TEXTILE PROCESS- II

L T P
3 - 4

RATIONALE

The students of textile design are supposed to have introductory, knowledge and skill related to various fibers, yarns and fabrics. Thus in this subject students learn different fibers, yarns and fabrics and their manufacturing techniques.

DETAILED CONTENTS

Theory	Practical Exercises
1. Introduction to mixing and blending techniques (3 hrs)	
2. Principles of blow room, carding, drawing/gilling, speed frame, ring frame and doubling (7 hrs)	2.1 Understanding different spinning processes by textile mill visit
3. process flow of cotton, woolen and worsted system of yarn manufacture (4 hrs)	3.1 Estimation of fiber diameter and yarn diameter by projection microscope 3.2 Understanding different processes by textile mill visit
4. Insertion of twist, S and Z, twist, type of package in spinning and doubling (5 hrs)	4.1 Inspection of yarns for S and Z twist, hard twisted and soft twisted yarns
5. Knowledge of standard yarns, bulked yarn, core yarn, high tenacity yarn, luster yarn, tyre cord yarn, carpet yarn, stretch yarn, twist-of-twist yarn, spiral yarn, grandrella yarn, hosiery yarn (8 hrs)	5.1 Identification of different types yarns studied in theory
6. Introduction to yarn packages (2 hrs)	
7. Process flow of fabric manufacturing (7 hrs)	7.1 Understanding different processes of weaving through textile mill visit
8. Basic principles of weft and wrap knitting and use of knitted fabrics (6 hrs)	8.1 Understanding process of knitting through textile mill visit
9. Process flow of wet processing (6 hrs)	13.1 Understanding of dyeing and printing through textile mill visit.

Note: The student may be exposed to different types of textile manufacturing processes through textile mill visit so that they are able to understand the subject properly

RECOMMENDED BOOKS

1. Textile Fiber by Ghol and Valansik
2. yarn to fabric by Peter Schwarz
3. Fiber to Fabric by BP Corbman\
4. Textile fibers and their processings by KP Hess
5. Elementary Textile by Parul Bhatnagar, Abhishek Publisher, Chandigarh

2.6 STRUCTURAL FABRIC DESIGN- II

L	T	P
3	-	4

RATIONALE

The students of textile design are supposed to have knowledge and skill regarding various weaves and their construction. Hence in this subject, students will learn different weaves, their method of employment to acquire competency for production of woven designs for different end uses.

DETAILED COMMENTS

THEORY

1. Characteristics and uses of satin and sateen weaves, construction of regular and irregular satin and sateen (6 hrs)
2. Construction of bed ford cord and wadded bed ford (4 hrs)
3. Backed fabrics, warp and weft backed fabric, wadded warp and weft backed fabrics their beaming and drafting procedure (6 hrs)
4. Welts and piques, methods of embellishing pique fabrics their structure, plain pique backed pique, fast backed welts and waved pique (Mill visit) (8 hrs)
5. Diamond weaves and their construction (4 hrs)
6. Simple honey comb, Brighton honey comb, huckaback, sponge and similar weaves (5 hrs)
7. Mock leno weaves and distorted thread effects (4 hrs)
8. Extra warp and weft, principles of figuring with extra warp and weft one and one i.e. pick and pick wefting, two and two wefting, methods of disposing of extra threads on the back of the fabric. Spot figures with extra warp and extra weft arranged in a particular order.

PRACTICAL EXERCISES

Following weaves to be constructed on graph paper

1. Construction of pointed and diagonal weave, satin and sateen weaves- regular and irregular.
2. Construction of Honey comb weave and Brighton honey comb
3. Construction of Mock Leno weaves as on following samples
Tray Cover-Tea cozy

Table Mart

Theme: Motif design with binding weave

Warp count 2/24s

Weft Yarn wool fancy or any other suitable material

Cushions

Weave in combination with plain weave

Placement square on rectangular blocks

Warp count 2/10s and 2/20s

Weft yarn fancy material

4. Drafting and denting of warp for weaves studied in theory
5. Study of effect of structure of cloth by changing denting plan
6. Study of effect of change in structure by varying lifting plan

Note: Concept of different weaves should be made clear with the help of samples and bobbin samples so that the students are able to identify different weaves in the fabric samples.

RECOMMENDED BOOKS

1. Grammar of Textile Design- Nisbet
2. Structural Fabric Design by – Kilby
3. Woven structures and design- Doris Goerner, British Textile Technology Group
WIRA House, Leeds (UK)
4. Fiber to fabric by Ghosh
5. Watson's advance textile design
6. Watson's textile design and colour

2.7 ART APPRECIATIONS IN INDIAN TRADITIONAL TEXTILE DESIGN-II

L	T	P
3	-	2

RATIONALE

Diploma holders of Textile Design are supposed to know the historical backgrounds of Indian Traditional textiles i.e. woven, printed and embroidered and their development of design, fabric uses and technical details. In practical, students learn to prepare replicas for which they should visit art galleries and museums.

DETAILED CONTENTS

Theory	Practical Exercises
1. Study of printed and painted textiles with reference to: - Historical Significance - Printing techniques - Styles, colours and dyes and motifs - Centers of production a) Kalamkari b) Gujarat and Rajasthan (Block Printing) c) Madhubani d) Indian Miniatures e) Saree of India (22 hrs)	1.1 Replication of designs (2 to 4 designs each) 1.2 Assignments to students on designs 1.3 Presentation of assignments 1.4 To practically make a wall panel with one or two styles
2. Study of resist dyed textiles with reference to: -Historical significance -Dyeing techniques - Styles, colours and motifs -Centers of production a) Patola, Ikat and Pochampalli b) Bandhani of Rajasthan and Gujarat c) Saree (20 hrs)	2.1 Replication of designs (2 to 4 designs each) 2.2 Assignments to students on designs 2.3 Presentation of assignments
3. Study of carpets and floor coverings (6 hrs)	3.1 Replication of designs (2 to 4 designs each) 3.2 Assignments to students on designs 3.3 Presentation of assignments

Note: Students should be taken to field visits to various production centers to show the samples of the above mentioned textiles. They may also be taken for field visits to various places like art galleries/museums/religious places

Practically execute any one of the traditional designs in the contemporary form and prepare a file with replica or samples of the given topics.

RECEMMENDED BOOKS

1. Folk embroidery of Himachal Pradesh by Subhashini Aryan.
2. Ikat Textile of India by Chetna Desai
3. Indian painted textiles by Kamla Dev Chattopadya
4. Carpets of India by Marc
5. Fabric Art heritage of India by Sukla Das
6. Hand woven fabric of India by Jasleen Dhamija
7. Indian Sari by Kamla Dev Chattopadya
8. Tie Dyed Textile of India by Veronica Murphy
9. Hand Woven fabrics of India by Jasleen Dhamija
10. Traditional Indian Textiles by John Gillow
11. Textile Art of India by Kyoto Shoin
12. Hand painting textile for the home by Kaszz Ball and Valerie
13. Tie Dyed Textiles of India by Murphyd Crill
14. Masterpieces of Indian Textile by Rustam J Mehta
15. Kashmir Shawls by All India Handicrafts Board
16. Everything you ever wanted to know about fabric painting by Jill Kennedy and Jane Vourell
17. Saries of India – RTZ and Singh
18. Saries of Madhya Pradesh
19. Embroidered textiles of India Calico Masam of India
20. Painted textiles of India Calico Masam of India
21. Printed textiles of India Calico Masam of India
22. Woven textiles of India Calico Masam of India
23. Costumes and textiles of India by Parul Bhatnagar, Abhishek Publisher, Chandigarh
24. Fabric painting by Jill Kennedy Verral

3.1 TEXTILE CALCULATIONS

L T P
3 - -

RATIONALE

A diploma holder in textile design is supposed to calculate the yarn count. Yarn Dimensions and carry out other textile calculations related to textile designing. This Subject aims at developing knowledge of various calculations related to yarn and fabric.

DETAILED CONTENTS

Theory

1. Yarn numbering, Direct and Indirect yarn numbering systems, Universal Yarn Numbering System, Conversion from one system to the other, calculation of resultant yarn number of plied yarn and average yarn number. (10 hrs.)
2. Yarn twist. Twist factor, twists per unit length, concepts of S and Z twists. (3 hrs.)
3. Calculations of yarn diameter. (2 hrs.)
4. Simple calculation of speeds from pulley and wheel drives. (4 hrs.)
5. Simple calculations of production of winding and warping (4 hrs.)
6. Calculation of size percentage and calculations related to cloth take up and crimp Percentage. (5 hrs.)
7. Calculations of speeds and production of loom. (3 hrs.)
8. Calculations of five-wheel and seven-wheel take up motion of loom, (3 hrs.)
9. Calculation of length of warp and weft in a fabric, weight of warp and weft required for particular length of the cloth, weight per unit area of cloth, fabric count. (8 hrs.)

10. Cloth cover, cover factor and weight of fabric per unit area. (3 hrs.)
11. Concept of cloth setting and its calculation, measurement of cloth thickness. (3 hrs.)

RECOMMENDED BOOKS

1. Weaving Calculations by R.Sen Gupta
2. Spinning Calculations by WS Taggart
3. Handbook of Spinning Calculation by TK Pattabhiram

3.2 DYEING TECHNOLOGY -I

L T P
2 - 4

RATIONALE

A diploma holder in textile design must have sufficient knowledge and skills about Principles of dyeing operation, equipment and processes. He should be able to execute Various recipes for dyeing.

DETAILED CONTENTS

Theory

1. Definition and history of Dyes and Dyeing. (2 hrs.)
2. Classification of Dyes. (3 hrs.)
(Natural, Mineral & Synthetic)
3. Pretreatments/Preparation of Material i.e. Fiber, yarn and fabric for Dyeing, (8 hrs.)
 - Singeing & Shearing
 - Desizing
 - Scouring
 - Bleaching
 - Mercerization
4. Water-Hardness of water, and its removal (3 hrs.)
 - Importance of soft water in Dying
5. pH – its definition, function and importance in dyeing (2 hrs.)
6. Forms of Dyeing (14 hrs.)
 - Dope Dyeing
 - Fiber Dyeing-Stock Dyeing
 - Package Dyeing
 - Hank Dyeing, Cheese/Cone Dyeing,

- Piece Dyeing/Fabric dyeing
- Rope Form, open width
- Union and cross Dyeing machine

LIST OF PRACTICALS

1. Study of different types of dyes and pigments.
2. Scouring of cotton, wool, silk and synthetics.
3. Bleaching of cotton fabric with sodium hypochlorite and H₂O₂ (Hydrogen peroxide)
4. Bleaching of wool and silk with H₂O₂ (Hydrogen peroxide).
5. Bleaching of synthetics with sodium chlorite.

INSTRUCTIONAL STRATEGY

The students should be taken to textile dyeing industry to show them various dyeing processes of dyeing and its machinery so that the students can know various dyeing processes being used by textile in industry.

RECOMMENDED BOOKS

1. Technology of Bleaching – VA Shenai
2. Scouring and Bleaching – ER Trotman
3. Technology of Dyeing - VA Shenai
4. Chemical Tech of Fibrous Material – ER Trotman
5. Chemistry of dyes and Principal of Dyeing – V.A. Shenai
6. Art of Dyeing – Chohan
7. The Dyeing of Textile Materials – Puente Cegarra

3.3 FABRIC MANUFACTURE-I

L T P
3 – 4

RATIONALE

The diploma holders in textile design are supposed to have knowledge and skills related to various looms and manufacturing of fabric. Thus in this subject, student will learn manufacturing Techniques and mechanism employed to produce fabric.

DETAILED CONTENTS

Sr. No	Theory	Practical Exercises
1.	Introduction to yarn packages and different yarn faults (3 hrs.)	Study of various yarn packages and yarn faults
2.	Objects of warp winding and weft winding, precautions necessary during warp winding and weft winding, defects caused during warp winding and weft winding. Machine used for different types of yarns (10 hrs.)	Preparation of pirn on pirn winding machine.
3.	Objects of warping, precautions during warping, methods of creeling, method preparing war per's beam. Types of wrapping machine. (6 hrs.)	Demonstration of different types of creels used for warping
4.	Importance of warping with respect to designing, (Sectional warping), defects in warping, their causes and remedies, their effects on designing and quality of the fabric (6 hrs.)	Demonstration of sectional warping machine and its motions/
5.	Calculations involved for the preparation of warp beam, pre planning of the required fabric to be produced like reed count of warp and weft, requirement of warp and weft colour, tape length (8 hrs.)	Preparation of warp beam on warping machine
6.	Objects of sizing, sizing ingredients and their functions. Outline of the procedure of sizing. (6 hrs.)	

- | | | |
|----|---|----------------------------------|
| 7. | Concept and Objectives of drafting and denting, procedure of drafting and denting, precautions to be taken during drafting and denting (6 hrs.) | Practice on drafting and denting |
| 8. | Gaiting up of a warp-beams on the loom procedure of gaiting up of warp- beam.

(3 hrs.) | Practice on gaiting up a warp |

INSTRUCTIONAL STRATEGY

Students may be asked to do all the work on handloom on power loom to develop the knowledge and skill in fabric manufacturing.

RECOMMENDED BOOKS

1. Weaving Mechanism Vol-I and II by NN Banerjee
2. Fancy Weaving by KT Aswani
3. Winding and Warping by BTRA
4. Warp Sizing by JB smith
5. Principle of Weaving by Marks and Robinsons
6. Yarn preparation Vol. I and II by R Sen. Gupta
7. Mechanism of Weaving by WM Fox

3.4 STRUCTURAL FABRIC DESIGN - III

L T P
3 – 6

RATIONALE

The students of textile design are supposed to have knowledge and skill regarding various advanced weaves and their construction. Hence, in this subject, students will learn different weaves, their method of employment to acquire competency for production of woven designs for different end uses.

DETAILED CONTENTS

THEORY

1. Double Cloth: Construction of double and treble cloth on design paper, their beaming, drafting and pegging. Types of double structure (i) Tabular fabrics (ii) Double faced fabrics (iii) fabrics opening to double the width (iv) concept of double equal plain fabrics, triple and four ply fabrics. Warp and weft dyeing principle.(This should be shown in a Textile Mill)
(20 hrs)
2. Introduction to gauze and leno fabrics
Structure of gauze and leno fabrics; bottom and top duping principle. Different types of sheds formed in gauze and leno fabrics; comparison of gauze with leno. Combination of gauze and other weaves; striped pattern, study of special leno structures (gauze and leno structures to be shown in a textile mill).
(20 hrs.)
3. Brocade and damask fabrics, reversible and non-reversible damask, making of bro-Cade and damask designs.

PRACTICAL EXERCISES

1. Study of the fabrics regarding structure/weave and its end use:
 - Draper or curtain – material in natural colour with perforated weaves of different drafting
 - Furnishing fabrics(upholstery) in double sloth weaves
 - Bed cover, doobby weave,
 - Partitions and Lampshades in gauze and leno fabrics

- Preparation of double sloth sample

INSTRUCTIONAL STRATEGY

Student should be able to understand different weaves from fabric samples and by weaving. They must be taken to Textile Industries for showing above mentioned various processes.

RECOMMENDED BOOKS

1. Grammar of Textile Design – Nisbet
2. Structural Fabric Design by – Kilby
3. Woven Structures and Design – Doris Goerner; British Textile Technology Group
WIRE house, Leeds UK
4. Fibre to fabric by Ghosh
5. Watson's advance textile Design
6. Watson's Textile Design and Colour
7. Knitting technology – Spencer
8. Warp Knit fabric Construction by Charis Wildens U. Wilkins Verlag Germany

3.5 PRINTING TECHNOLOGY-1

RATIONALE

A diploma holder in textile design must have enough knowledge about principles and practices employed for printing. He must be aware of various operation, materials, equipments and processes used for printing.

DETAILED CONTENTS

Theory

1. Introduction to printing and its Historical Background (2 hrs.)
2. Preparation of cloth for painting (3 hrs.)
3. Selection of thickness and its properties (3 hrs.)
4. Essential constituents of printing paste and its importance (3 hrs.)
5. Preparation of printing Paste and its importance (3 hrs.)
6. Auxiliaries used for Printing (3 hrs.)
7. Methods of printings (10 hrs.)
 - Block printing
 - Stencil printing
 - Screen printing
 - Roller printing
8. Style of printing (10 hrs.)
 - Direct/steam style
 - Resists
 - Discharge
 - Mordant/dyed
 - Non-conventional
9. After treatment of printed material (10 hrs.)
 - Drying
 - Steaming/ageing/curing
 - Washing off

LIST OF PRACTICALS

1. Preparation of cloth for printing
2. Printing of following dyes by block/screen/stencil/roller on cotton
 - Pigment colours reactive dyes
 - Vat dyes
 - Rapid fast dyes
3. Printing of wool and silk by following dyes by block/screen/stencil
 - Acid dyes
 - Basic dyes
 - Metal complex dyes
4. Printing of synthetic fabric by following dyes with block/screen/stencil/roller
 - Pigment colours
 - Disperse dyes
 - Acid dyes
 - Basic dyes

INSTRUMENTAL STRATEGY

The student should be taken to textile printing industry to show them various printing processes and machinery so that the students can know various printing processes being used by textile printing industry.

RECOMMENDED BOOKS

1. Technology of Printing by VA Shenai
2. Technology of Printing by Kalley
3. A glimpse of Chemical Technology of Fibrous Materials by RR Chakravorty
4. Dyeing and printing by Varke
5. Dyeing and Printing by Jyoce storey
6. Introduction to Textile printing by Clark
7. Screen printing Designs and Technique by Biegelesien and Cohn
8. Manual of Textile Printing by story

RATIONALE

Information technology has great influence on all aspects of life. Almost all work places and living environment are being computerized. In order to prepare diploma holders to work in these environments, it is essential that they are exposed to various aspects of information technology such as understanding the concept of the information technology and its scope; operation a computer; use of various tools of MS office; using internet etc. From the broad competency profile of diploma holders. This exposure will enable the students to enter their professions with confidence, live in a harmonious way and contribute to the productivity.

Note:

1. *Teaching of theory should be dovetailed with practical work*
2. *The following topics may taught in the laboratory along with the practical exercises.*

DETAILED CONTENTS

Relevant Instructions for Practical Exercise

1. Information technology – its concept and scope
2. Computers for information storage, information seeking, information processing and information transmission
3. Elements of computer system, computer hardware and software; data – numeric data, alpha numeric data; contents of program, processing
4. Computer organization, block diagram of a computer , CPU, memory
5. Input devices; keyboard, mouse etc; output devices; VDU and Printer, Scanner, potter
6. Electrical requirements, inter-connections between units, connectors and cables
7. Secondary storage; magnetic disks tracks and sectors, optical disk (CD and DVD Memory), primary and secondary memory: RAM, ROM, PROM etc., capacity; device controllers, serial port, parallel port, system bus.
8. Exercises on file opening and closing; memory management; device management and input –output (I/O) management with respect of windows.

9. Installation concept and precautions to be observed while installing the system and software.
10. Introduction about Operating System such as M-S DOS and Windows.
11. Special features, various commands of MS word and M-S Excel.
12. About the internet – server types, connectivity (TCP/IP, shell); applications of internet like: e-mail and browsing
13. Various Browsers like WWW(World wide web); hyperlinks; HTTP (Hyper Text Transfer Protocol); FTP (File Transfer Protocol)
14. Basics of Networking – LAN, WAN, Topologies

LIST OF PRACTICALS

1. Given a PC, name its various components and list their functions
2. Identification of various parts of computer and peripherals.
3. Practice in installing a computer system by giving connection and loading the system software and application software.
4. Installation of DOS and simple exercises on TYPE, REN DEL, CD, MD, COPY, TREE, BACKUP commands.
5. Exercises on entering text and data (Typing Practice)
6. Installation of windows 98 or 2000 etc.
 - (1) Features of Windows as an operation system
 - Start
 - Shutdown and restore
 - Creating and operation on the icons
 - Opening closing and sizing the windows
 - Using elementary job commands like – creating, saving, modifying, renaming, finding and deleting a file.
 - Creating and operating on a folder
 - Changing setting like, date, time color (back ground and fore ground)
 - Using short cuts
 - Using on line help

7. MS-WORD

- File management:
Opening, creating and saving a document, location files, copying contents in some different file(s), protecting files, Giving password protection for a file
- Page Set up:
Setting margins, tab setting, ruler, indenting
- Editing a document:
Entering text, Cut, copy, paste using tool-bars
- Formatting a document:
Using different fonts, changing font size and colour, changing the appearance through bold/italic/ underlined, highlighting a text, changing case, using subscript and superscript, using different underline methods
- Aligning of text in a document, justification of document, inserting bullets and numbering
- Formatting paragraph, inserting page breaks and column breaks
- Use of headers, footers: inserting footnote end note, use of comments
- Inserting date, time, special symbols, importing graphic images, drawing tools.
- Tables and Borders:

Creating a table, formatting cells, use of different border styles, shading in tables, merging of cells, partition of cells, inserting and deleting a row in a table
- Print preview, zoom, page setup, printing options
- Using Find, Replace options
- Using tools like:

Spell checker, help, use of macros, mail merge, thesaurus word content and statistics, printing envelopes and labels
- Using shapes and drawing toolbar,
- Working with more than one window in MS word

- How to change the version of the document from one window OS to another
- Conversion between different text editors, software and MS word

8. MS-EXCEL

- Starting excel, open worksheet, enter, edit, data formulas to calculate values, format data, create chart, printing chart, save worksheet, switching from another spread sheet
- Menu commands:
Create, format charts, organize, manage data, solving problem by analyzing data, exchange with other applications. Programming with MS- excel, getting information while working
- Work books:
Managing workbooks (create, open, close, wave), working in work books, selecting the cells, choosing commands, data entry techniques, formula creation and links, controlling calculations, working with arrays
- Editing a worksheet, copying, moving cells, pasting, inserting, deletion cells, rows, columns, find and replace text, numbers of cells, formatting worksheet
- Creating a chart:
Working with chart types, changing data in chart, formatting a chart, use chart to analyze data
- Using a list to organize data, sorting and filtering data in list
- Retrieve data with MS – query: Create a pivot table, customizing a pivot table. Statistical analysis of data
- Customize MS-Excel:
How to change view of worksheet, outlining a worksheet, customize workspace, using templates to create default workbooks, protecting work book
- Exchange data with other application: linking and embedding, embedding objects, linking to other applications, import, and export document.

9. Internet and its Applications
 - a) Log-in to internet
 - b) Navigation for information seeking on internet

 - c) Browsing and down loading of information from internet
 - d) Sending and receiving e-mail
 - Creating a message
 - Creating an address book
 - Attaching a file with e-mail message
 - Receiving a message
 - Deleting a message

RECOMMENDED BOOKS

1. Fundamentals of Computer by V Rajaraman; Prentice Hall of India Pvt. Ltd., New Delhi

2. Computers Today by SK Basandara, Galgotia publication Pvt Ltd. Daryaganj, New Delhi

3. MS-Office 2000 for Everyone by Sanjay Saxena; Vikas Publishing House Pvt. Ltd., New Delhi

4. Internet for Everyone by Alexis Leon and Mathews Leon; Vikas Publishing House Pvt.Ltd. Jungpura, New Delhi

5. A First Course in Computer by Sanjay Saxena; Vikas Publishing House Pvt. Ltd., Jungpura, New Delhi

6. Mastering Windows 95, BPB Publication, New Delhi

7. Computer Fundamentals by PK Sinha; BPB Publication, New Delhi

8. Fundamentals of Information Technology by Leon and Leon; Vikas Publishing House Pvt. Ltd., Jungpura, New Delhi

EXPERIMENTAL AWARENESS CAMP

This is to be organized at a stretch for two to three days during second year. Lectures will be delivered on the following broad topics. There will be no examination for this subject

1. Who is an entrepreneur?
2. Need for entrepreneurship, entrepreneurial career and wage employment.
3. Scenario of development of small scale industries in India
4. Entrepreneurial history in India, Indian values and entrepreneurship
5. Assistance from District Industries Centers, Commercial Banks. State Financial Corporation Small industries Service Institutes, research and Development: laboratories and other financial and development dorporations
6. Considerations for product selection
7. Opportunities for business, service and industrial ventures
8. Learning from Indian experiences in entrepreneurship (Interaction with successful entrepreneurs)
9. Legal aspects of small business
10. Managerial aspects of small business

4.1 DYEING TECHNOLOGY-II

L T P
2 - 4

RATIONALE

A diploma holder in textile design must have necessary knowledge of procedures used for dyeing. He must have sufficient knowledge and skills about principles of dyeing operation, materials, equipments and processes. He should be able to execute various recipes for dyeing.

DETAILED CONTENTS

Theory

1. Basic concepts of Acids, Alkalis, Oxidizing and Reducing agents and optical Brightening Agents (OBA)
(4 hrs.)
2. Application of Dyes on cellulosic materials (8 hrs.)
 - Direct D
 - Reactive R
 - Azoic A
 - Vat V
 - Sulphur S
3. Application of Dyes on wool/silk (6 hrs.)
 - Basic B
 - Acid A
 - Metal complex/Chrome Dyes M
4. Application of dyes on synthetics (6 hrs.)
 - Basic /modified basic dyes on Acrylic/cashmilon
 - Disperse dyes on Polyester/Terelene
 - Acid dyes on Nylon/Polyamides
5. Introduction to equipments/machinery used in dyeing (8 hrs.)
 - Package Dyeing machine
 - Hank Dyeing/Cone Dyeing machine
 - Winch machine
 - Jigger machine

- Beam dyeing machine
- Jet Dyeing machine

LIST OF PRACTICALS

1. Dyeing of cotton with Reactive dyes (cold brand/Hot brand)
2. Dyeing of cotton with direct Dyes
3. Dyeing of cotton with Azoic colours
4. Dyeing of cotton with Vat Dyes
5. Dyeing of cotton with sulphur Dyes
6. Dyeing of wool/silk with Acid/basic/Metal complex dyes.
7. Application of basic/modified basic dyes on acrylic
8. Dyeing of Nylon with Acid dyes
9. Dyeing of Polyester with Disperse Dyes
10. Industrial visit to show working of dyeing machines

INSTRUCTIONAL STRATEGY

The students should be taken to dyeing industry to show them various dyeing processes of dyeing and its machinery so that students can know various dyeing processes being used by textile industry.

RECOMMENDED BOOKS

1. Technology of Bleaching – VA Shenai
2. Scouring and Bleaching – ER Trotman
3. Technology of Dyeing - VA Shenai
4. Chemical Tech of Fibrous Material – ER Trotman
5. Chemistry of dyes and Principal of Dyeing – V.A. Shenai
6. Art of Dyeing – Chohan
7. The Dyeing of Textile Materials – Puente Cegarra

4.2 FABRIC MANUFACTURE

L T P

3 - 4

RATIONALE

The diploma holders in textile design are supposed to have knowledge and skills related to various looms and manufacturing of fabric. Thus in this subject, student will learn manufacturing techniques and mechanism employed to produce fabric.

DETAILED CONTENT

Sr.No.	Theory	Practical Exercise
1.	Introduction to looms & their objectives, their classifications. Nomenclature of different parts of looms & their functions. Loom motions (primary, secondary and auxiliary motion) (5 hrs.)	Demonstration of various parts of handloom.
2.	Different type of sheds, their advantages and disadvantages. Limitations of tappets shedding in designing. Defects of tappets shedding. (8 hrs.)	To study different types of sheds.
3.	Introduction to different picking systems (over pick and under pick motions) (4 hrs.)	To study the over pick and under pick motions
4.	Beat up motions, loom timing. (6 hrs.)	
5.	Take – up motion: - five wheel and seven wheel take-up motions, objectives of let-off motion (negative and positive) protecting motions. (6 hrs.)	To study five wheel and seven wheel take up motion.
6.	Objects of warp protecting motion: - loose reed & fast reed motions. (6 hrs.)	To study loose reed and fast reed motions.
7.	Objects fo warp stop motion (electrical & mechanical) and weft stop motions (side weft fork motion) (8 hrs.)	To study side weft fork motions
8.	Dobby :- (climax and paper doobby) Dobby defects and their removal. Preparation of doobby chain. (5 hrs.)	To study double lift doobby.

RECOMMENDED BOOKS

1. Weaving Mechanism Vol. I by NN Benerjee
2. Mechanism of weaving TW Fox
3. Principle of weaving by Marks and Robinsons.

4.3 STRUCTURAL FABRIC DESIGN – IV

L T P

3 – 4

RATIONALE

The students of textile design are supposed to have knowledge and skill regarding various advanced weaves and their construction. Hence, in this subject, students will learn different weaves, their method of employment to acquire competency for production of woven design for different end uses.

DETAILED CONTENTS

THEORY

1. Principle of formation of pile construction of three, four, five and six pick terry fabrics. Their method of drafting and denting. Terry ornamentation. (14 hrs.)
2. Pile fabrics: designing of plain warp pile fabrics in detail. Reversible warp pile structure and double plush. Weaving of weft pile fabrics, weft pile fabrics, weft plusher. Varieties of quilting fabrics. Distinctive features and modifications of toilet fabrics. (14 hrs.)
3. Lappet and swivel weaving, features and methods of designing lappet and swivel figures. Comparison of lappet, swivel and embroidered fabrics. (14 hrs.)
4. Production of colour and weave effect. (6 hrs.)

PRACTICAL EXERCISES

1. Analysis of fabrics
 1. Objects and methods of analyzing fabric
 2. Particulars to be analyzed
 3. Identifying warp and weft in the fabric
2. Analysis of following fabrics.
 - A. Gents shirting(cotton)
 1. Strips on loom
 2. Small geometrical motifs on doobby loom

- B. Gents Suiting
 - 1. Trousers length with colour effect in plain weave in cotton
 - 2. Tweed material for jackets in wool

- C. Ladies dress material

- D. Pile Fabrics

INSTRUCTIONAL STRATEGY

Student should be able to understand different weaves from fabric samples and by weaving. They must be taken to Textile Industries for showing above-mentioned processes.

RECOMMENDED BOOKS

- 1. Grammar of Textile Design – Nisbet
- 2. Structural Fabric Design by – Kilby
- 3. Woven Structures and Design – Doris Goerner; British Textile Technology Group WIRE house, Leeds UK
- 4. Fibre to fabric by Ghosh
- 5. Watson's advance textile Design
- 6. Watson's Textile Design and Colour
- 7. Knitting technology – Spencer
- 8. Warp Knit fabric Construction by Charis Wildens U. Wilkins Verlag Germany

4.4 PRINTING TECHNOLOGY-II

L T P

2 – 4

RATIONALE

A diploma holder in textile design must have enough knowledge about principles and practices employed for printing. He must be aware of various printing operations, materials, equipments and processes used for printing.

DETAILED CONTENTS

Theory

1. Printing under resist/reserved style (8 hrs.)
 - Introduction & definition.
 - Batik style.
 - Resist under
 - Reactive Dyes
 - Vat Dyes under Vat Dyed ground
2. Printing under discharge style (8 hrs.)
 - Introduction and Definition
 - Coloured and white Discharge paste
 - Printing of white and coloured discharge with basic dyes
 - Vat dyes on direct coloured dyes ground
3. Methods of preparation of screens. (5 hrs.)
 - Enamel Method.
 - Photographic Method.
4. Description of various printing machineries (6 hrs.)
 - Roller
 - Flat Bed
 - Rotary
 - Duplex
5. Transfer Printing (5 hrs.)
 - Sublimation Transfer Printing
 - Melt & film release Transfer Printing
 - Wet Transfer Printing

LIST OF PRACTICALS

1. Printing of cotton, wool, silk by various techniques of tie & die style of printing
2. Printing of cotton and silk with Batik style.
3. Printing of white and coloured resist under reactive and Vat Dyed ground
4. Printing of white and coloured discharge with vat, Basic on direct colour dyed ground.
5. Printing of white and coloured discharge with vat on naphthanol colour dyed ground.
6. Preparation of screens by
 - Enamel Method
 - Photographic Method

INSTRUCTIONAL STRATEGY

The students should be taken to textile Printing Industries to show them various processes of finishing and its machinery so that they can know the various finishing processes being used by Textile Industry.

REFERENCE BOOKS

1. Technology of Printing by VA Shenai
2. Technology of Printing by Kalley
3. A Glimpse of Chemical Technology of Fibrous Materials by RR Chakarvorty
4. Dyeing and Printing by Uarke
5. Dyeing and Printing by Jyoce Storey

4.5 CAD FOR TEXTILE DESIGN-I

L T P

- - 4

RATIONALE

The term CAD has found its way into all major discipline that has got anything to do with designing or drafting techniques. The major objective of this course is to expose the students to different softwares available in the field of textile design and construction of various textiles.

DETAILED CONTENTS

Practical Exercises

1. Introduction to latest coral draw & Photoshop softwares
2. Use of various tools in coral draw & Photoshop.
3. Formation of designs using different tools and applications of design on graph paper.
4. Application and selection of suitable colours for a particular design.
5. Scan a design with the help of Photoshop
6. Change of colour scheme of the design.
7. Enlargement and reduction of design

RECOMMENDED BOOKS

1. SAMS coral Draw-II
2. SAMS Adobe Photoshop-I

4.6 PRODUCT DESIGN

L T P

- - 6

Product design aims at exposing the students to experiment on the practical aspect to a finished product. The student has to select a style, embroidered/painted/printed woven/dyed fabric and then make at least 10 design using computers – Coral and Adobe Photoshop.

They can continue one or more styles and finish a complete product with 4 different colour ways, at least 50 croques should be made before a final design chart, and visualization is made and approved by the supervisor with at least 3 to 4 colour schemes.

The product design has to be presented before the panel of teachers using O.H.P (slides)

Thrust areas;

1. Design chart
2. Colour schemes
3. Costing of the product
4. Utility aspect of the product
5. Market survey of the product
6. Materials used
7. Export presentation

The teachers alongwith industry personnel will conduct performance assessment of students. The criteria for assessment will be as below:

<u>Criteria</u>	<u>Weightage</u>
Attendance and punctuality	15 percent
Initiative	15 percent
Relations with people	15 percent
Report writing	55 percent

5.1 STRUCTURAL FABRIC DESIGN-V

L T P
3 – 6

RATIONALE

The students of textile design are supposed to have knowledge and skill regarding various advanced weaves and their construction. Hence, in this subject, students will learn advanced design for various fabrics and quality particulars of different textiles.

DETAILED CONTENTS

THEORY

1. Jacquard Harness & design calculations. (2 hrs.)
2. Economical distribution of colour in designs as applied to textiles. (2 hrs.)
3. Construction of point paper designs, process of drafting a sketch design, drafting design from woven fabrics. Prevention of long floats, figure shading, insertion of ground weaves, correct and incorrect designs drafting, combination of special weaves and special yarns (This should be shown by visiting textile designing section of textile industry)
(15 hrs.)
4. Methods of comparing jacquard designs, conditions to observe in designing figured fabrics
(3 hrs.)
5. Introduction of tapestry fabrics, varieties of tapestry fabrics, construction of jacquard harness and method of preparing tapestry designs, instruction for card cutting. (6 hrs.)
6. Introduction of following standard fabrics: (20 hrs.)
Blazer cloth, book muslin, brocade, buckram calico, casement cloth, chiffon corduroy, crepe fabrics damask, denim, drills, duck, felted cloth, flannel, fustian gabardine, honeycomb fabrics, huckaback cloth, jean khaki –leno, long cloth, mull muslin, organdie pile fabrics, pique, plush, pongee poplin quilts repp; reversible sloth, rib sloth, rugs, serge, swivel fabrics, taffeta, terry towel, tweed, velveteen, welts, industrial fabrics (blow rapper), water resistant, fire resistant cloth, blankets, shawls, men's suiting's, women's suit fabrics, curtains, upholstery cloth.

PRACTICAL EXERCISES

1. Preparation of original painted textile designs suitable for dobby weaving, four painted textile designs to be prepared by students. Each student or one pair of students should have their own design separately.

2. Preparation of point paper jacquard designs from original painted design. Applied design for damask, brocade, tapestry fabrics, double cloth leno and pile fabric should be prepared. At least four woven original jacquard designs to be produced by every group of four students separately.

INSTRUCTIONAL STRATEGY

Student should be able to understand different weaves from fabric samples or by weaving and should be taken for a visit to Museum for Oriental Tapestry/Carpets.

RECOMMENDED BOOKS

1. Watson's Advance Textile Design
2. Watson's Textile Colour and Design
3. Grammar of Textile Design by Nisbet
4. Structural Fabric Design by Kilby
5. Woven Structures and Design I and II by Davis Goerner
6. Fibre to Fabric by Ghosh
7. Knitting Technology by Spencer
8. Impressions – Master Pieces of Indian Textiles by K Prakash
9. Shawls and Carpets of Kashmir by All India Handicraft Board, New Delhi

5.2 FABRIC MANUFACTURE-III

L T P
3 – 4

RATIONALE

Diploma holders in Textile design are supposed to have knowledge and skills in advanced techniques of weaving used to produce designs on fabrics,. In this subject, students will learn these mechanisms and manufacturing techniques.

DETAILED CONTENTS

Sr. No.	Theory	Practical Exercise
1.	Jacquard different types of jacquard, detailed study of double lift double cylinder jacquard, chain for even and odd Picks and sequence of card arrangement for double cylinder jacquard. Figuring capacity of jacquard. (12 hrs.)	- ractical on jacquard loom. - reparation of jacquard card & practice on card cutting machine. - reparation of jacquard card & practical
2.	Working of inverted hook, cross-border, gauge and leno jacquards, their effect on capacity of design and saving	- Study different jacquards with special reference to designing capacity.

- in card cutting. (10 hrs.)
3. Common defects of jacquards shedding and their effects on the fabric. (5 hrs) - Study different jacquards shedding defects in fabric.
 4. Card cutting machine, card lacing (3 hrs) - Practice of card lacing.
 5. Principal of drop box motion, preparation of drop box chain for different weft patterns, weft mixers for 2x 1, 4 x 1 and pick at will motion for 4 x 4 box motions. (8 hrs) - Preparation of chain for different weft pattern and study of pick at will motion
 6. Elementary idea of modern weaving machines. (3 hrs.)
 7. Introduction to carpet weaving (Tufted and knotted carpets). (5 hrs.) - Preparation of carpet samples on carpet frames.

INSTRUCTIONAL STRATEGY

Student may be asked to do all the work on handloom or power loom machines to develop the knowledge and skill in fabric manufacturing.

RECOMMENDED BOOKS

1. Weaving mechanism Vol. I and Vol. II by N N Benerjee
2. Fancy weaving by KT Aswani
3. Principles of weaving by marks and Robinsons.
4. Mechanism of weaving by TW Fox
5. Jacquard EK Saral Vidya by S.S. Satsangi (Bilingual)

RATIONALE

The term CAD had found its way into all major discipline that has got anything to do with designing or drafting techniques. The major objective of this course is to expose the students to different softwares available in the field of textile design industry so that they are able to use those softwares in the design and construction of various textiles.

DETAILED CONTENTS

Related theory for Practical Exercises

1. Philosophy and utility of CAD system, working with various standard software packages like Photoshop, coral draw.
2. Understanding graphic representation, file conversion, drawing simple geometric figures, capturing a picture using CCD/Scanner
3. Use of computer to construct design on different bases with reference to various arrangements for woven designs.
4. Use of CAD in various end uses viz dress material, upholstery, furnishing, label, & embroidery

PRACTICAL EXERCISE

Software packages like Textronics/textstylers/Wonder weave/Scot weave Design systems may be adopted for doing following exercises (Any one may be chosen or any other latest software):

1. Preparation of Woven Fabric Construction and Design
 - Selection of a fabric
 - Use of CAD for creating fabric structure by selecting drafting and lifting plan
 - Selection of colour scheme
 - Selection of yarn count, twist and its direction, and type of yarn
 - Presentation of simulated fabric design on computer screen and also on paper

2. Modify/editing fabric design from original fabric and looking at the effect of modification (Modification could be on yarn count, colour, twist, and its direction; fabric drafting and lifting plan)

RECOMMENDED BOOKS

1. CAD in clothing and textile by W.Aldrich
2. A magazine on computer in the world of textile

5.4 TESTING AND QUALITY CONTROL-I

L T P
4 – 4

RATIONALE

Diploma holders in textile design are responsible for testing and quality control of yarn and fabric at the shop floor. Thus in this subject, student will be made fully aware of different quality standards and their maintenance during manufacturing processes for the total quality concept.

DETAILED CONTENTS

S r. n o.	Theory	Practical Exercises
1	Textile testing – its aim & scope. Concept of quality control and its importance. Methods of quality control. <p style="text-align: right;">(8 hrs)</p>	
2	Importance of fixing standards. Brief idea of factors responsible for deviation from standards. (6 hrs)	
3	Sampling techniques. Random and biased samples. Techniques for fabric sampling for specific tests.	Preparation of leas of different sizes on warp reel.
4	Methods of yarn numbering (Direct, indirect and universal systems) measurement of yarn number from large and small yarn lengths. Beesley's and Knowle's balance (12 hrs.)	<ul style="list-style-type: none"> ➤ Measurement of yarn number from large and small length samples- use of Knowle's Beesley's balances ➤ Direct weighing methods and ➤ Analytical balance
5	Yarn twist and its measurement, direction of (twist size). Function of twist in yarn structure. Effect of twist on yarn Properties. Measurement of twist in single and ply yarns. (10 hrs.)	<ul style="list-style-type: none"> ➤ Measure of twist in single and folded yarns by twist testers.
6	Chemical testing: Test of colour fastness for (a) Washing (b) Rubbing (Wet & Dry)	<ul style="list-style-type: none"> ➤ Use of laundrometer & crock meter for testing of fastness. Demonstration of Grey scale & Blue scale.

	(c) Dry cleaning (d) Perspiration (Alkaline & Acidic medium) (e) Light (f) Chlorination. (12 hrs.)	
7	Blend test by (Microscopic, burning and chemical processes). (8 hrs.)	Blend test by use of Microscope and solubility process.

NB: All testing procedures are to be followed as per laid down standards by BIS.

INSTRUCTIONAL STRATEGY

Student must be taken to textile industries/Mills for practice and study of inspection and quality control operations.

RECOMMENDED BOOKS

1. Textile Testing By JE Booth
2. Textile Testing by Grover and Hamley
3. Textile Testing by Angapan
4. Textile Testing by John H. Skinkle; DB Taraporewala and Sons, Bombay

5.5 TEXTILE FINISHING

L T P

3 - -

RATIONALE

A diploma holder in textile design must have necessary knowledge and procedures used for finishing. For this, he should be acquainted with different types of processing of finishing machines used for finishing. In addition, relevant skills also need to be developed in him about the operation of these machines.

DETAILED CONTENT

Theory

1. Introduction, objects of finishing and its importance. (2 hrs.)
2. Classification of various types of finishes. (2 hrs.)
3. Study of finishes with respect to the purpose, fabrics and reagents used. (2 hrs.)
4. Routine finishes
 - Heat setting
 - Desizing
 - Scouring
 - Bleaching
 - Mercerization (8 hrs.)
5. Calendaring & its applications (2 hrs.)
6. Textural finishes, their types and techniques (2 hrs.)
7. Special Finishes (14 hrs.)
 - Special calendaring
 - Water proof and water repellent finishes
 - Flame retardant and flame proof finishes
 - Soil & stain release finishes
 - Antibacterial & moth proofing finishes
 - Crease/wrinkle resistant finishes
8. Stabilization finishes & its applications (8 hrs.)
 - Relaxation shrinkage/ compressive shrinkage
 - Mercerization
 - Filling and crabbing
 - Chlorination
 - Resin treatment
 - Stentering
 - Wet & dry decatizing
9. Effluents and its treatments (6 hrs.)
10. Latest developments in finishing (2 hrs.)

INSTRUCTIONAL STRATEGY

The students should be taken to textile industry to show them various processes of finishing and its machinery so that they can know the various finishing processes being used by textile industry.

REFERENCE BOOKS

1. Technology of Finishing by VA Shenai
2. Textile Finishing by J T Marsh, BI Publications, New Delhi
3. Effluents by ATIRA
4. Technology of Bleaching by VA Shenai
5. Textile Fibres and Their use by Katharine Paddock HESS Oxford & IBJ Publishing Co. Pvt. Ltd., New Delhi, Bombay, Kolkata
6. Textile fiber to Fabric by Bernard P. Corbman, McGraw Hill International Editions

RATIONALE

Management and costing assumes vital importance for a diploma holder in textile design. He must appreciate the value of leadership, motivation, human relations etc. because he is to work in team in a textile industry. Creating awareness regarding industrial legislation, environmental education and entrepreneurship will help the students to perform their jobs more effectively.

DETAILED CONTENTS**THEORY**

- | | | |
|-----|--|-----|
| 1. | Principles of Management
(hrs.) | (17 |
| 1.1 | Introductions to Management, different functions of management: planning,
Organizing, coordination and control, gathering and organizing data | |
| 1.2 | Management Structure of an industrial organization with relation to textile industry | |
| 1.3 | Line and staff functions | |
| 1.4 | Functions of different departments related to textile industry | |
| 1.5 | Relationship between individual departments | |
| 2. | Human Resource Development
(6 hrs.) | |
| 2.1 | Introduction | |
| 2.2 | Staff development and career advancement | |
| 2.3 | Training strategies and methods | |
| 2.4 | Objectives and procedure of job evaluation | |
| 2.5 | Methods of job evaluation | |
| 2.6 | Objectives and methods of merit rating | |
| 2.7 | Advantages and disadvantages of merit rating | |
| 2.8 | Relations with subordinates, peers and superiors | |
| 3. | Motivation
(6 hrs.) | |
| 3.1 | Factors determining motivation | |
| 3.2 | Characteristics of motivation | |
| 3.3 | Methods for improving motivation | |
| 3.4 | Incentives, pay promotion, rewards | |
| 3.5 | Job satisfaction and job enrichment | |
| 3.6 | Labour welfare | |
| 3.7 | Workers' participation in management | |

4. Leadership
(4 hrs.)
 - 4.1 Need for leadership
 - 4.2 Functions of a leader
 - 4.3 Factors to be considered for accomplishing effective leadership
 - 4.4 Manager as a leader

5. Industrial Legislation
(8 hrs.)
 - 5.1 Introduction
 - 5.2 Importance and necessity of industrial legislation
 - 5.3 Principles of labour legislation
 - 5.4 Types of labour laws and disputes
 - 5.5 Salient features of the following Acts (General Knowledge only)
 - Factory act, 1948
 - Payment of Wages Act, 1936
 - Minimum Wages Act, 1948
 - Workmen's Compensation Act, 1923
 - Industrial Dispute Act, 1947
 - Employee' State Insurance Act, 1948

6. Environmental Education
 - 6.1 Introduction
 - 6.2 Ecology
 - 6.3 Factors causing pollution
 - 6.4 Effects of pollution on human health
 - 6.5 Air pollution and control Act –salient feature
 - 6.6 Water pollution and control Act – salient feature
 - 6.7 Noise pollution and its control

7. Entrepreneurship
 - 7.1 Introduction to entrepreneurship
 - 7.2 Project Planning
 - 7.3 Sources of finances for projects

8. Costing
 - 8.1 Basic concepts about different types of costs, like incremental cost, overhead cost, Capital cost etc.

8.2 Accounting concepts and financial statements (Highlighting balance and income Statement presentation, primary emphasis on accounting as a source of financial Information with procedural details kept to be a minimum)

8.3 cost control system including standard costs

8.4 Profit planning

RECOMMENDED BOOKS

- Principles of Management by Phillip Kotler
- Industrial Legislation and Labour Laws by F Cherunelam
- Accounting Methods by IM Pandey
- Cost Accounting for Beginners by B Dutta
- Textile Management by VD Dudeja

6.1 KNITTED DESIGN

L T P
4 - 4

RATIONALE

The aim of this subject is to impart knowledge and skills to the students regarding various types of knits and their use in the textile design as they may have to work in knitting industry and import and export houses as well.

DETAILED CONTENTS

Sr. No.	Theory	Practical Exercise
1.	Comparison between knitted and woven fabrics, warp and weft knitting. Types of knitting needles, their knitting cycle, advantages and disadvantages of each. (18 hrs.)	- Demonstration of different needles and their cycles - Yarn parameters for hosiery yarn
2.	Weft Knitting Types of stitches: Knit, tuck, float, and lay their	Preparation of knit tuck and float stitches.

	<p>representation, effects, methods of formation and their end uses.</p> <p>(6 hrs.)</p>	
3.	<p>Weft knit structures : Plain, Rib, Interlock and Purl, their characteristics, representation, derivatives, end uses and knitting cycles.</p> <p>(18 hrs.)</p>	<p>Passage of yarn through Flat Bed and Circular Weft Knitting Machines</p>
4.	<p>Fabric defect in weft knitting cover factor/tightness factor, robbing back, and calculations pertaining to production. Method of production</p>	<ul style="list-style-type: none"> - Identification of fabric defects on the machine knitted designs - Study knitting cycles of latch models on the machines

	n of hose, half – hose. (8 hrs.)	
5.	Warp Knitting: Introduction to under lap and overlap, closed lap and open lap. Brief description of Tricot and Raschel machines and fabrics lapping movement of warp knitting. (14 hrs.)	- Study rapping movement of warp knits - Preparation of warp knit samples

INSTRUCTIONAL STRATEGY

Student may be asked to do the work on weft knitting machines and construct the lapping movement of warp knits.

RECOMMENDED BOOKS

1. Knitting technologies by D.B. Ajgaokar
2. Knitting technology by Mark Spancer
3. Textile Mathematics Vol III by J.E. Booth

RATIONALE

The term CAD had found its way into all major discipline that has got anything to do with designing or drafting techniques. The major objective of this course is to expose the students to different softwares available in the field of textile design industry so that they are able to use those softwares in the design and construction of various textiles.

DETAILED CONTENTS

Related theory for Practical Exercises

- Understanding graphic representation, file conversion, drawing simple geometric and other related design, capturing a design using CCD/Scanner and modifying them
- Use of computer to design, fabric construction including the use of computer to match colour line for woven and printed designs
- Use of CAD in various and viz. dress material, upholstery, furnishing, label, embroidery, knitting.

PRACTICAL EXERCISE

Software packages like Textronics/textstylers/Wonder weave/Scot weave Design systems may be adopted for doing following exercises (Any one may be chosen or any other latest software):

1. Preparation of Knitted Fabric Construction and Design
 - Selection of a fabric
 - Use of CAD for creating fabric structure
 - Selection of colour scheme
 - Selection of yarn count, twist and its direction and type of yarn
2. Preparation of Printed and Dyeing on Fabric
 - Selection of design either by selecting printed fabric or by generating figures based on ideas
 - Selection of colour scheme
 - Finalizing the design on computer screen/paper
3. Preparation of label design using any of the software

RECOMMENDED BOOKS

1. CAD in clothing and textiles by W.Aldrich
2. A magazine on Computer in the world of textiles

6.3 TESTING AND QUALITY CONTROL – II

L T P

4 - 4

RATIONALE

Diploma holders in textile design are responsible for testing and quality control of yarn and fabric at shop floor. Thus in this subject, student will be made fully aware of different quality standards and their maintenance during manufacturing process for the total concepts.

DETAILED CONTENTS

Sr. No.	Theory	Practical.
1.	Common fabric defects, their analysis and remedial measures (3 hrs)	Identification of fabric faults
2.	Definition of Crimps and take-up. Measurement of crimps by Crimpmeter. Crimp take-up and fabric properties (8 hrs)	Crimp measurement of warp & weft of fabric with help of crimpmeter
3.	Fabric thickness and its measurement. Measurement of fabric weight. (3hrs)	Measurement of thickness by thickness tester.
4.	Introduction of fabric stiffness handle and drape. Measurement of fabric stiffness. Drapemeter and its working. (8 hrs)	Measurement of fabric weight. (i) Measure of stiffness of fabric. (ii) Use of drapemeter
5.	Crease recovery and its measurement. (3 hrs)	Measurement of crease recover, recovery angle of fabric. (wrap and weft direction)
6.	Pilling of fabric. Its measurement. (3 hrs)	
7.	Testing of fabric strength. (Tensile , tearing and bursting strength. (6 hrs)	Measurement of tensile, bursting and tearing strength test with the help of Tensile Strength Tester, Bursting Strength Tester and Tearing Strength Tester.
8.	Moisture relation & testing. Definition of Moisture Regain. Moisture Content : Absolute Humidity & Relative Humidity. Relation between Regain and Humidity. Standard Laboratory Conditions Measurement of moisture regain by Drying Ovens and Electronic Moisture Meter.	Measure of moisture contents of yarn & fabric by electronic moisture meter and drying oven.
9.	Fabrics shrinking and its Measurements. (3hrs)	<i>Use of laundro meter for measurement of shrinkage.</i>
10.	Water Absorbency properties of various fabrics. (4 hrs)	
11.	Flammability, Factors effecting flammability of fabrics. Measurement of	<i>Flammability testing with the help of flammability Tester</i>

	flammability (8 hrs)	
12.	Concepts of Serviceability , wear and abrasion., their measurement and interpretation of results. (7hrs)	<i>Testing with wear and abrasion tester.</i>

INSTRUCTIONAL STRATEGY

Students must be taken to textile Industries/Mills for practice and study of inspection and quality control operations

RECOMMENDED BOOKS

1. Textile Testing By JE Booth
2. Textile Testing By Grover and Hamley
3. Textile Testing By Angapan
4. Textile Testing By John H.Shinkle: DB Taraporewala and Sons, Bomabay

6.4 GARMENT DESIGN

L	T	P
2	-	4

RATIONALE

The students of textile design should have knowledge and skills in cutting, sewing pressing etc. so that they are able to appreciate design components in textile.

DETAILED CONTENTS

Sr. No.	Theory	Practical Exercises
1.	Cutting :The planning , drawing, drafting, pattern making and reproduction of the maker, the spreading of the fabric to form a lay, the cutting of the fabric. (8 hrs.)	To study tools and equipments used in clothing /garments constructions.
2.	Sewing : The propertied of seams, darts seam types, sewing machine needles types, sewing problem basic sewing machine. (8 hrs)	Demonstration of machines parts of sewing machine, Threading & working defect remedies and oiling Types of Stitches
3.	The use of components and triminings: Labels and motifs, lining, interlinking, waddings. (4hrs.)	Practice of making of different types of opening, buttons holes fastners, taking & hemming types of collars neck- lines, stitching of different cloths.
4.	Pressing: The principle of pressing, pressing Equipments And methods. (4hrs.)	Appliances required for pressing and finishing and pressing of textile and finishes (mill visit only)
5.	Quality control: Principles of quality control, Total Quality Control, just in time. Inspection systems and care labeling of apparel and textile/Eco-labels American care labeling (CLS), International care labeling System, British care labeling systems, Japanese care labeling systems. (8hrs.)	

INSTRUCTINAL STRATEGY

The students may be asked to perform various operation viz. draqing pattern making, cutting etc. in order to prepare different seams necklines, collars etc. on sewing machine

RECOMMANDED BOOKES

1. Garments Finishing and care labeling by SS Satsangi, M/s Usha Publication, Delhi
2. Textiles-fibers and Fabrics by Bernard Polytechnic Corbman, </s McGraw Hill. International Edition
3. Garments design by Armstrong

6.5 MAJOR PROJECT WORK

L	T	P
-	-	10

The purpose of introducing the projects are to enables the students to apply the knowledge, skills and attitude acquired during the entire of the solutions of real life problems. Each student will be assigned a specific problem. The student will have to go through the entire problem solving right from conception of design upto the executions of design. It is expected that student will be sent to various textile industry for about 6 – 8 weeks at a stretch and they will be asked to take live problem from the field as project work

Identification of textile industry and projects activities which can be taken by the students for projects work should begin well in advance (say in the beginning of third year). Students should also be asked to identify suitable textile industry and project activities which can be taken by them. One teacher is expected to guide, supervise and evaluate the projects work of 5 – 7 students

The assessment of project work shall be based on :

- i) Definition of problem
- ii) Explain the approach towards solutions of problem
- iii) Developing ad sketches – developing alternatives
- iv) Colour scheme – developing alternatives
- v) Final design - developing alternatives
- vi) Fabric selection/yarn selection
- vii) Procedure adopted by the student in originality of the design concepts
- viii) Initiative and participation of students

A viva voca examination shall be conducted at the end of the projects for assessing the work of the student. The examination committee for this purpose shall consist of a professional designer, teacher who has guided the project. The project work should be properly displayed by the student

Suggested Problems for the project Work

These problems may be reproduced on graph and later on , in the production of fabric by weaving or printing.

- i) Floral pattern in stylized and naturalistic form
- ii) Indian mythology depicting a Mahabharata scene
- iii) Batik and tie and dye technique in geometrical on abstract design
- iv) Paisley motifs within decorative form of floral patterns increase with blackout line work
- v) Sea animals (fishes), sea breeds and sea shells
- vi) Tantric art
- vii) Floral pattern flowers heads, buds, leaves and stems in the line work of art.

9. RESOURCE REQUIREMENT

9.1 Physical resources

9.1.1 Space Requirement

The total space for the lecture halls, tutorials rooms and drawing hall/studio may be worked out as per latest AICTE norms

Sr. No	Name of Laboratory / Workshop	Nos.	Area for one workshop (Sq.m)
1.	Weaving Workshop (metre)	3	200 (Min. height 5)
2.	Testing Laboratory	1	200
3.	Dyeing Laboratory	1	200
4.	Printing Laboratory	1	200
5.	Dark room Studio	1	20
6.	Lecture halls	4	40 each
7.	Drawing hall	2	40 each
8.	Stores	3	20 each

9.1.2 Equipment Requirement

Sr. No.	Details of Equipments	Qty.	Approximate cost per unit in Rs.
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WEAVING WORKSHOP (PREP)

1.	Warping machine (sectional Warping Machine	1	Cost Rs 60,000
	All steel channel frame.		
	Drum circumference – 02 meters		
	Width of drum – 01 meters.		
	All main drive fitted in ball bearing low noise and smooth running gearing.		
	2HP single phase motor for driving.		
	Adjustable fleng hubs, gearing and supports should be provided for warp beaming by poer driving fo the both handloom and powerloom warp beams.		

	Heck box with open and soldered dent reed for lease should be provided.		
	Adjustable rack type , sliding creel frame horizontal creel of 108 cones capacity fitted with guides, tensioners. Machine fitted with measuring dial for a required warp tape length upto 100 mts.		
2.	Pin winder	2	30,000 each
	Automatic with 4-8 winding heads horizontal or circular magazine diameter setting pin length adjustment.		
	Machine should be provided with thread guide for equitension of yarn per unit and auto stop motion on completion of pin.		
	Winding can be from hank, cheese or cone and machine should be suitable for winding all type of yarn.		
3.	Wet winding machine (hank to cone winding)	1	30,000 each
	Number of drum = 10		
	Helical frictionless bakelite drums.		
	Machine should be able to wind from hank, bobbin to cone and provided with tensioners, guides and other accessories for proper working condition like swift, ring bobbins should also be provided.		
4.	Piano card cutting machine (card Punching Machine coarse Pitch)	1	40,000 each
	Capacity 13 punches including one for peg.		
	Cost iron frame with steel head stock.		
	Display board for graph paper of teak wood of 4 feet x1.5 feet height with adjustable graph paper support for pick reading		
5.	Drafting frame	2	10,000 each
	Vertical wooden frame (teak wood) 10cm x10cm wooden log upto 6 ¹ / ₂ feet height and 7 feet width.		
	Two J- type iron strips ¹ / ₂ " thick for supporting the warp beam from upper arm of drafting frame/ stand.		
6.	Card Lancing Frame	2	50,000 each
	Horizontal wooden (teak wood) frame with suitable stand upto 3 feet height.		
	Provision for pegs upto max 50 and suitable both for 200 hooks and 400 hooks Jacquard cards.		
	Width adjustable for all type of Jacquards Cards		

WEAVING WORKSHOP (HANDLOOM)			
1.	HANDLOOM	4	10,000 each
	Reed width = 24" and 36: (Two Each)		
	All Deodar woodd frame		
	Height of frame – 6 ¹ / ₂ '		
	Back to front – 6'		
	Shuttle box length = 22'		
	Gears for let –off and takeu p of fabric.		
	6 steel heald frame for each loom with 1500 heald wires.		
	2 shuttles frame for each loom with 1500 heald wires.		
	4 trasdle aracngement.		
2.	Handloom (one handloom (48") with doobby and one handloom (60") with Jacquard)	2	60,000 each
	All deoder wood frame		
	Height of frame – 8 ¹ / ₂ '		
	Back to front – 6'		
	For 48" handloom provision for Dobby fixation and 60" handloom provision for Jacquard fixation.		
	Sufficient steel heald frame , heald wires, maileye, Lingoos, shuttles, pirn be provided as accessory.		
	12 Jack doobby (for Handloom)		
	Capacity – 12 Jack		
	Single cylinder/barral, single lift doobby.		
	Cost iron frame with fitting brackets to be fitted on handloom.		
	Single litf lag barral chain and spare pegs of provided as accessory.		
	200 Hooks Jacquard (For Handloom)		
	Hooks capacity = 200+8 selvedge hooks.		
	Needles = 200		
	Single lift single cylinder, coarse pitch.		
	Needles and hooks of steel.		
	Cylinder of deodar wood with 7/32" holes.		
	Spring box with brass spring.		
	Length of hooks = 20".		
	Needle tickness = 16 gauze.		
	Hooks ticjness = 12 gauze.		
	Complete in all respect for running condition		

WEAVING WORKSHOP (POWER LOOM)			
1.	Power loom (for 24 jack dobby fitting)		1,00,000 each
	Read width 48".		
	Left hand drive		
	Speed of machine 95-120 r.p.m.		
	Electrical warp stop motion with 6 bars		
	Over pick 4 x 1 drop- box controlled by cam and lever systems, 7 wheels take up motion.		
	Provision for dobby fitting.		
	Frame depth suitable to accommodate upto 16 heald frames of 1/4" tickness.		
	Loom provided with side weft fork motion and loose reed motion.		
	Sley and race board made from good quality seasoned deodar wood.		
	Individual V-belt drive, BIS mark motot.		
	Machine should run efficiently, smoothly wihtout vibrations.		
	All accessory, sixteen heald frames, 4 spare shuttles with pirns and 8000 heald wires 2 warp, beeams and chains and weight shoud be provided.		
	24 JACK DOBBY (for POWER LOOM)		
	Capacity – 24 jack, left hand dobby).		
	Single cylinder/ barral, double left double jack lever.		
	Cost iron frame, left hand sidedobby provided with firring bracket and connection rod for connection to bottom shaft of a power loom.		
	Spare lag barral chain for double lift dobby and dobby pegs to be provided to enanble prover running of the machine.		
2.	Power loom (400 hook jacquard fitting)	1	1,20,000 each
	Reed width – 60".		
	Reed – fast reed tyoe.		
	Under pick motion.		
	Positive take up and let- off motions.		
	Provision for fitting of 400 hooks jacquard fitting, links, chains etc.		
	Slay and race board should be made of gppd quality deodar or teak wood.		

	4x1 drop box		
	Individual V-belt drive.		
	Accessories like lingoos and maileye heald wire about 8000, 4 shuttles with pirns, spare harness shoud also be provided.		
	400 HOOKS JACQUARDS (For POWER LOOM)		
	Capacity – 400 + 8 selevedge hooks.		
	Hooks thickness = 13 gauge.		
	Needle tickness = 14 gauge.		
	Needle size = 20”		
	Hook size = 24”		
	Cast iron frame		
	Cylinder double lift jacquard.		
	Link, connection from bottom shaft of power loom.		
	Coarse pitch jacquard		
	Accessories like maileye along with lingoos upto 8000, harness ball ahoul also be provided.		
WEAVING WORKSHOP (CARPET LOOM)			
1	Carpet loom (upto 4’ carpet width)		
	Twp 4’ diameter hollow pipe. 6 1/2’ length for every loom.		
	collar at 4” inward to each end warp pipe.		
	4 or 5 hooks welded on pipe to accommodate warp rod 1” dia and 4 1/2’ length.		
	1” hole at about 6” under the right end of warp pipe to accommodate tensioneng rod.		
	Two side wooden frames having food rest to dtand about 3’ length and holes cut to accommodate 4” hollow pipe to move freely.		
	Sheeding arm length 3’.		
2.	Carpet loom (upto 6’ carpet width)	2	6000 each
	Two 6” hollow pipe, 9’ length for each loom. Collar at 5” inside to each end of warp pipe. 6-7 hooks at equal distanvce welded on the warp pipe to accommodate warp iron rod 2” dia and about 6 1/2’ long. 1” hole on right handside of warp pipe about 6” inside collar to accommodate tensioning rod.		

	Two side wooden frames having foot rest to stand, about 3 to 4 "length,6" tick.		
	Shedding arm length 3'		
3.	Misc.. Equipment for carpet weaving		10,000 each
	Iron rod 1" dia 4 ¹ / ₂ ' length = 4 Nos.		
	Iron rod 2" dia 6 ¹ / ₂ ' length = 4 Nos.		
	Iron rod 3/4 "dia 2' length = 12 Nos.		
	Tie up chain (sangal) = 4 nos.		
	Beating comb (Panja) = 10 Nos.		
	Scissors (carpet) 8 Nos.		
	Wooden temples (pankh) 4' carpet length = 2 Nos.		
	Wooden temples (pankh) 6' carpet length = 2 Nos.		
	Warping iron roas 2" dia 3' length = 4 Nos.		
	Sheding pipe 2" dia 7" length = 2 Nos.		
	Shedding pipe 2" dia 10" length = 2 Nos		
	TEXTILE TESTING LAB.		
1.	Projection microscope	2	25,000 each
	Magnification range upto 1500 times.		
	Screen size : 180 MM ϕ .		
	Illumination : episcopic lamp of 12v/100 w or 25/250w.		
	Accuracy upto : 0.001mm		
2.	Yarn count balance (Beesley's Balance)	2	3,000 each
	Bench type : one		
	Pocket size : one		
	Balanvce capable to measure yarn count of warp & weft of small lengths of fabric in cotton, linen, woolen, silk nad and worsted sysystems.		
	Metallic templatler graduated in cotton : ¹ / ₂ cotton ; worsted; woolen,,: silk and linen.		
	Standard weight box containing two standingh weight (hanging type) i.e. one larger and one of small size.		

3.	Yarn tensile strenght tester	1	50,000 App
	Single end yarn strenght tester ideal for testing the single as well as plied yarn test lenghts.		
	Power drivern tester with constant rate of traverse principle.		
	Four strenght scales: 0 – 300 gms, 0-500 gms 0-300 gms 0-500 gms.		
	Elengation sclae graduate in mm or inches and percentage.		
	Standard test length of upto 500 mm. or 20 incehes.		
	Auto stop motion on specimen break.		
4.	Cloth tensile strength tester	1	50,000 app
	Tensile strenght tester – constant rate of loading type.		
	Capacity : 300 ibs.		
	Standars grips for woven fabric and flat filamant yarn fabrcs.		
	Power operated with motor of 1/2h.p.		
5.	Fabric Thickness Tester	1	20,000 app.
	Thickness range upto - 75 mm.		
	Measure bulk density of fibreous materials.		
	Range of pressure : 20 – 2000gm/cm ² .		
	Manually oprated.		
	Accuracy : 0.3 mm		
6.	Yarn Crimp Tester	1	10,000 app
	Tension range – 0-175 gm.		
	Metric and imperial calibrations,		
	Test length : 120 cms or 48 inches		
	Fixed jaw and sliding cursor type.		
7.	Nep counting templates	1	5000 App
	Consisiting of cardboard of black background to facilitate visibility idntification of neps presentsin the fiberous web.		
	Transparent templated consisiting of row of holes of standard size.		
8.	WRAP Reel (Power Driver)	1	25,000 App
	Electronic varispeed drive with slow stop to		
	Collapsible swift one meter cirumference.		
	Counter to measue number of truns.		

	Separate creels with tension devices for holding yarn package in the form of hanks, bobbins and cones		
	Warning belt on completion of length of 100 meter.		
9.	WRAP BLOCK	1	10,000 App
	Wrap block with cutter to ensure exact length of sliver and roving.		
	Resettable counter.		
	Fitted with creel for two roving bobbins and one silver.		
	Drum with : 75 mm (metric)		
	Drum circumference : 1 meter (metric)		
	Manual operated.		
Dyeing Laboratory			
1.	Stainless steel jigger lab type (manually or power operated)	1	27,000
2.	High speed stirrer with regulator	3	6,000
3.	Dyeing bath (4'x 2'x3')	4	5,000
4.	Dyeing rack (8' length)	10	2,000
5.	Misc. Equipment for dyeing	LS	10,000
6.	Dyeing oven steel cabinets	1	10,000
7.	Steel cabinets	4	11,000
8.	Laundimeter with grey for colour change	1	15,000
9.	Crock meter with grey scale for staining	1	10,000
Printing Laboratory			
1.	Steam heated printing tables	4	12,000
2.	Free hand printing Frames (wooden)	1	2,000
3.	Tracing tables	6	10,000
4.	Slanting printing tables	2	5,000
5.	Flat Printing Table (for block printing)	2	6,000
Computer laboratory			
1.	PC Pentium –IV, seameer 3300 with laser printer with textile designing software with transparency adaptor		75,000
2.	LCD Projector		1.50.000
3.	Any one software of textile design may be purchased from the following given software: 1. Scotweave : Scottish college of textile gals, UK 2. Tex Styler Wonder Weave, Bombay 3. Auto Tex for weaving. PLC Consulting Company Gwalior House , 37 – Rajpur Raod, Delhi 110054 4. Textronics design Systems, 120 Ist floor Hindustan Kohinoor Industrial Complex : LBS		

	Marg, Vikhroli (W) Mumbai 83 *Computer laboratory will be common with other disciplines being run in the institute		
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Studio (Dark Room)

1.	Zoom Digital Camera 64 mb Ram 3.1 Mega pixel	1	50,000
2.	Tracing Table 3'x2' with glass top with light arrangements	4	1000
3.	Exposing Table (Full Empirical Lockers)(Godrej)	4	1000
4.	Enlarger with provision for reproduction from reflection copy	1	3000
5.	Drafting Table With lighting arrangement	30	5000

9.2 Human Resources Requirement

Weekly work schedule, annual work schedule, student- teacher ratio for various groups and class size, staffing pattern, work load norms, qualification experience and job description of teaching staff, workshop staff and other administrative staff may be worked out as per norm and standards laid down by AICTE.

10. RECOMMENDATIONS FOR EFFECTIVE IMPLEMENTATION OF CURRICULUM

The following recommendations are made for effective implementation of this curriculum.

- a) While imparting instruction, stress should be laid on the development of practical skills in the students.
- b) Field visit be organized as and when required to clarify the concepts, principles and practices involved. For this purpose, time has already been provided in student centred activities.
- c) Extension lectures from professionals should be organized to impart instructions in specialised areas.
- d) There is no need of purchasing very costly equipment. Efforts may be made to establish linkage with local industries/Field Organizations
- e) Considerable stress should be laid on personality development of the student, which is very essential for any diploma holder.
- f) Teacher should generate competitiveness among the students for the development of professional skills.
- g) Teacher should take interest in establishing linkage with industries and field organization for the imparting field experiences to their students.
- h) Hobby clubs and other co-curricular activities be promoted to develop creativity in the students
- i) Teacher should be sent for training in the new areas relevant to their field of specialization.
- j) Students should be given relevant and well thought out projects assignments. This will help students in developing creativity and confidence in them for gainful employment (wage and Self)
- k) A Project bank should be developed by the textile design department of the polytechnic in consultation with textile industry, Textile Research Institute and other important textile institutions in the state.

1) 11. LIST OF PARTICIPANT

The following experts participated/contributed in the revision of curriculum for diploma programme in Textile Design during the workshop for revision of subjects of the first year for Haryana state held on 22-23 May 2003 at National Institute of Technical Teachers' Training and Research, Chandigarh

From Field/Industries/Institutions of Higher Learning	
1.	Dr.(Mrs.) Parul Bhatnagar, Incharge, Post Graduate Diploma in Textile Designing, Faculty of Arts, Dayal bagh Educational Institute, Dayalbagh, Agra 202 005
2.	Dr. JN Chakraborty, Assistant Professor, Department of Textile Technology, Dr. BR Ambedkar regional Engineering College (N.I.T.) Jalandhar-II, Punjab
3.	Shri MD Roy, Senior Lecturer , Department of Textile Technology, Dr. BR Ambedkar regional Engineering College (N.I.T.) Jalandhar-II, Punjab
FROM POLYTECHNICS	
4.	Shri AS Gil, Principal (retd). Punjab Institute of Textile Technology, Amritsar (Punjab)
5.	Shri Narinder Pal, Principal, Punjab Institute of Textile Technology, Amritsar (Punjab)
6.	Shri. GS Bhatti, Incharge, Textile Design Department Punjab Institute of Textile Technology, Amritsar (Punjab)
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