NSQF Aligned Curriculum
for
Three Years (Six Semester) Diploma Programme
in

TEXTILE DESIGN (PRINTING)

For the State of Uttar Pradesh

Effective from Session 2022-23

Prepared by:
Curriculum Development Centre
Institute of Research Development and Training
Kanpur

Corrected and Approved by Board of Technical Education, U.P., Lucknow in CDC Meeting held on 19.08.2023

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PREFACE

An important issue generally debated amongst the planners and educators world over is how technical education can contribute to sustainable development of the societies struggling hard to come in the same bracket as that of the developed nations. The rapid industrialization and globalization has created an environment for free flow of information and technology through fast and efficient means. This has led to shrinking of the world, bringing people from different culture and environment together and giving rise to the concept of world turning into a global village. In India, a shift has taken place from the forgettable years of closed economy to knowledge based and open economy in the last few decades. In order to cope with the challenges of handling new technologies, materials and methods, we have to develop human resources having appropriate professional knowledge, skills and attitude. Technical education system is one of the significant components of the human resource development and has grown phenomenally during all these years. Now it is time to consolidate and infuse quality aspect through developing human resources, in the delivery system. Polytechnics play an important role in meeting the requirements of trained technical manpower for industries and field organizations. The initiatives being taken by the State Board of Technical Education, UP to revise the existing curricula as per the needs of the industry and making them NSQF compliant .

In order to meet the requirements of future technical manpower, we will have to revamp our existing technical education system and one of the most important requirements is to develop outcome-based curricula of diploma programmes. The curricula for diploma programmes have been revised by adopting time-tested and nationally acclaimed scientific method, laying emphasis on the identification of learning outcomes of diploma programme.

The real success of the diploma programme depends upon its effective implementation. However best the curriculum document is designed, if that is not implemented properly, the output will not be as expected. In addition to acquisition of appropriate physical resources, the availability of motivated, competent and qualified faculty is essential for effective implementation of the curricula.

It is expected of the polytechnics to carry out job market research on a continuous basis to identify the new skill requirements, reduce or remove outdated and redundant courses, develop innovative methods of course offering and thereby infuse the much needed dynamism in the system.

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vi) Faculty / Subject Experts from different departments of U.P. Government polytechnics for content updating.

vii) CDC Officer and other Concerning Staff of IRDT Kanpur for their support and assistance in the conduct of Curriculum workshops at different places.

1. SALIENT FEATURES OF DIPLOMA PROGRAMME IN TEXTILE DESIGN (PRINTING)

1)	Name of the Programme	:	Diploma Programme in Textile Design (Printing)
2)	Duration of the Programme	:	Three years (Six Semesters)
3)	Entry Qualification	:	Matriculation or equivalent NSQF Level as Prescribed by State Board of Technical Education, UP
4)	Intake	:	60 (or as prescribed by the Board)
5)	Pattern of the Programme	:	Semester Pattern
6)	NSQF Level	:	Level - 5
7)	Ratio between theory and	:	45 : 55 (Approx.)

2- EMPLOYMENT OPPORTUNITIES OF DIPLOMA HOLDRERS INTEXTILE DESIGN (PRINTING)

I. Diploma holders in textile design (Printing) may find employment in:

- ► Medium & Small scale industries
- ► Garment manufacturing industries
- ► Garment Sales Emporium
- ► Department of Education
- ► Film Industry
- ► Advertising industry
- ► Modeling
- ► Fashion Designing
- ► Article Writing in Fashion magazines
- ► Entrepreneur
- ► Textile Designer
- ► Boutique/Stencil/Screen Printing
- ► Interior Decoration
- ► Drawing & Painting
- ► House hold decorative Textile Articles
- ► Dying/Bleaching
- ► Garment Manufacturing
- ► Consultancy Services.

ii) 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

iii) 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. LEARNING OUTCOMES OF DIPLOMA PROGRAMME IN TEXTILE DESIGN (PRINTING)

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

1. Ability to observe and draw various object forms and their surroundings in perspective with 3 dimensional effects to create design based on their shapes, colours and textures
2. Understanding of the concepts and principles of designs
3. Ability to design various forms over textile fabrics
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. Awareness regarding entrepreneurial support system and basic principles of management, ecology and environment, safety measures
11. Development of designs as per customers requirement
12. Competency to inspect the end product and ensure its quality
13. Knowledge of interpersonal relations and skills in communication

4-DERIVING CURRICULUM AREAS FROM LEARNING OUTCOMES OF THE PROGRAMME

Sr.No.	Competency Profile	Curriculum Area
1.	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.	-Besic Design & Sketching -Drawing, Rendering & study of Objects,
2.	Understanding of the concepts and principles of designs	-Principles of Design and Sketching (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.
3	Ability to design various forms over textile fabrics	-Textile Design
4.	Understanding of principles of colour, various techniques to create textures, colour schemes and colour ways	-Basic Design and Sketching -Textile Colouratio (Introduction to colour theory, application of colour in designs to improve texture)
5.	Appreciation of traditional Indian Textiles and Art	- Indian traditional Design (History of Indian textiles and art Appreciation)
6.	Basic knowledge of textile materials and fabric constructions	-Textile Materials - Yarn Manufacturing Process (Textile Materials, operational knowledge oflooms and fabric construction) - Garments & Fashion Studies
7.	Competencies for production of woven /Knitted design	-fabric Structure - Fabric manufacturing Process (Basic techniques of designing)
8.	Competencies on dyeing and printing	-Textile Colouration -Textile Printing (classification of dye stuffs, methods and styles of dyeing and methods of printing) - Advance Textile Printing
9.	Competency in making use of computer for	-Computer Aided Textile Design

	developing various textile designs	(CATD)
10.	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)
11.	Development of designs as per customers‟ requirement	-Major project (Application of knowledge and skills in creatingnew designs)
12.	Competency to inspect the end product and ensure its quality	-Textile Testing
13.	Knowledge of interpersonal relations and skills in communication	-Communication skills - Universal Human Values -Project Work

5- ABSTRACT OF THE CURRICULUM AREAS

a) General Studies

1- Communication Skills-I and II
2- Basics of Information Technology
3- Energy Conservation
4- Environmental Studies
5- Universal Human Values

b) Basic Courses of Textile Design

6- Textile Materials
7- Principles of Design and Sketching
8- Yarn Manufacturing Process
9- Indian Traditional Textile
10- Fabric Manufacturing Process-I, II & III
11- Textile Colouration
12- Fabric Structure
13- Textile Printing
14- Textile Design –I &II
15- Advance Textile Printing
16- Garment & Fashion Studies

c) Applied Courses of Textile Design

17- Basic Design & Sketching
18- Identification of Textile Materials
19- Drawing, Rendering & Study of Objects
20- Fabric Analysis
21- Computer Aided Textile Design (CATD) I & II
22- Textile Testing I & II
23- Project Work
24- Field Exposure

6- HORIZONTAL AND VERTICAL ORGANISATION OF THE SUBJECTS

Sr. No.	Subjects	Distribution in Periods per week in Various Semesters					
		I	II	III	IV	V	VI
1.	*Communication Skills-I & II	6	-	6	-	-	-
2.	Textile Materials	6	-	-	-	-	-
3.	Principles of Design and Sketching	6	-	-	-	-	-
4.	Basic Design and Sketching (Practical)	12	-	-	-	-	-
5.	Identification of Textile Materials	8	-	-	-	-	-
6.	Basics of Information Technology	6	-	-	-	-	-
7.	Yarn Manufacturing Process	-	6	-	-	-	-
8.	Indian Traditional Design	-	6	-	-	-	-
9.	Fabric Manufacturing Process- I & II	-	6	-	06	-	-
10.	Drawing,Rendering & Study of Objects (Pract)	-	12	-	-	-	-
11.	Indian Traditional Design (Pract.)	-	12	-	-	-	-
12.	Textile Colouration	-	-	06	-	-	-
13.	Fabric Structure- I & II	-	-	06	-	-	06
17.	Textile Colouration (Pract.)	-	-	10	-	-	-
18.	Fabric Analysis (Pract.)	-	-	10	-	-	-
19.	Computer Aided Textile Design –I & II (CATD) (Pract.)	-	-	08	-	-	08
21.	Textile Printing	-	-	-	06	-	
22.	Textile Design –I &II	-	-	-	06	06	-
24.	*Environmental Studies	-	-	-	05	-	-
26.	Textile Printing (Practical)	-	-	-	10	-	-
27.	Textile Design –I & II (Pract.)	-	-	-	10	10	-
28.	Textile Testing –I&II	-	-	-	-	06	06
29	Professional Studies	-	-	-	-	06	-

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30	*Universal Human Values	-	-	-	-	03	-
31	Textile Testing –I & II (Practical)	-	-	-	-	10	08
32	^Advance Textile printing	-	-	-	-	6	-
33	*Energy Conservation	-	-	-	-	-	05
34	Garment & Fashion Studies	-	-	-	-	-	06
35	Project Work	-	-	-	-	-	06
36	Student centered activities (SCA)	4	6	2	5	1	3
		48	**48**	**48**	**48**	**48**	**48**

7. STUDY AND EVALUATION SCHEME FOR DIPLOMA PROGRAMME IN TEXTILE DESIGN (PRINTING)

FIRST SEMESTER

Sr. No.	SUBJECTS	STUDY SCHEME Periods/Week			Credits	MARKS IN EVALUATION SCHEME								Total Marks of Internal & External
						INTERNAL ASSESSMENT			EXTERNAL ASSESSMENT					
		L	T	P/drg		Th	Pr	Tot	Th	Hrs	Pr	Hrs	Tot	
1.1	*Communication Skills-I	4		2	4	20	10	30	50	2.5	20	3	70	100
1.2	Textile Materials	4	2	-	4	20	-	20	50	2.5	-	-	50	70
1.3	Principles of Design & Sketching	4	2	-	4	20	-	20	50	2.5	-	-	50	70
	Practicals													
1.4	Basic Design & Sketching	-	-	12	5	-	50	50	-	-	100	4	100	150
1.5	Identification of Textile Materials	-	-	8	4	-	50	50	-	-	100	4	100	150
1.6	*Basics of Information Technology	-	-	6	2	-	40	40	-	-	60	3	60	100
#Student Centered Activities (SCA)		-	-	4	1	-	30	30	-	-	-	-	-	30
Total		**12**	**4**	**32**	**24**	**60**	**180**	**240**	**150**	**-**	**280**	**-**	**430**	**670**

* Common with other diploma programmes.

\# Student Centered Activities will comprise of co-curricular activities like extension lectures, games, hobby clubs e.g. photography etc., seminars, declamation contests, educational field visits, N.C.C., NSS, Cultural Activities and self study etc

SECOND SEMESTER

Sr. No.	SUBJECTS	STUDY SCHEME Periods/Week			Credits	MARKS IN EVALUATION SCHEME								Total Marks of Internal & External
						INTERNAL ASSESSMENT			EXTERNAL ASSESSMENT					
		L	T	P/drg		Th	Pr	Tot	Th	Hrs	Pr	Hrs	Tot	
2.1	Yarn Manufacturing Process	4	2	-	4	20	-	20	50	2.5	-	-	50	70
2.2	Indian Traditional Design	4	2	-	5	20	-	20	50	2.5	-	-	50	70
2.3	Fabric Manufacturing Process-I	4	2	-	5	20	-	20	50	2.5	-	-	50	70
	Practicals													
2.4	Drawing ,Rendering & Study of Objects	-	-	12	5	-	50	50	-	-	80	4	80	130
2.5	Indian Traditional Design	-	-	12	5	-	50	50	-	-	80	4	80	130
#Student Centered Activities (SCA)		-	-	6	1	-	30	30	-	-	-	-	-	30
Total		**12**	**6**	**30**	**25**	**60**	**130**	**190**	**150**	**-**	**160**	**-**	**310**	**500**

Student Centered Activities will comprise of co-curricular activities like extension lectures, games, hobby clubs e.g. photography etc., seminars, declamation contests, educational field visits, N.C.C., NSS, Cultural Activities and self study etc

THIRD SEMESTER

Sr. No.	SUBJECTS	STUDY SCHEME Periods/Week			Credits	MARKS IN EVALUATION SCHEME								Total Marks of Internal & External
						INTERNAL ASSESSMENT			EXTERNAL ASSESSMENT					
		L	T	P/drg		Th	Pr	Tot	Th	Hrs	Pr	Hrs	Tot	
3.1	Textile Colouration	4	2	-	4	20	-	20	50	2.5	-	-	50	70
3.2	Fabric Structure -I	4	2	-	4	20	-	20	50	2.5	-	-	50	70
3.3	Communication Skills -II	4	-	2	4	20	10	30	50	2.5	20	3	70	100
	Practicals													
3.4	Textile Colouration	-	-	10	4	-	40	40	-	-	80	3	80	120
3.5	Fabric Analysis	-	-	10	4	-	40	40	-	-	80	3	80	120
3.6	Computer Aided Textile Design –I (CATD)	-	-	8	3	-	50	50	-	-	100	3	100	150
#Student Centered Activities (SCA)		-	-	2	1	-	30	30	-	-	-	-	-	30
Total		**12**	**4**	**32**	**24**	**60**	**170**	**230**	**150**	**-**	**280**	**-**	**430**	**660**

Student Centered Activities will comprise of co-curricular activities like extension lectures, self study, games, hobby clubs e.g.photography etc., seminars, declamation contests, educational field visits, N.C.C., NSS, Cultural Activities, disaster management and safety etc.

FOURTH SEMESTER

Sr. No.	SUBJECTS	STUDY SCHEME Periods/Week			Credits	MARKS IN EVALUATION SCHEME								Total Marks of Internal & External
						INTERNAL ASSESSMENT			EXTERNAL ASSESSMENT					
		L	T	P/drg		Th	Pr	Tot	Th	Hrs	Pr	Hrs	Tot	
4.1	Textile Printing	4	2	-	4	20	-	20	50	2.5	-	-	50	70
4.2	Textile Design -I	4	2	-	4	20	-	20	50	2.5	-	-	50	70
4.3	Fabric Manufacturing Process -II	4	2	-	4	20	-	20	50	2.5	-	-	50	70
4.4	*Environmental Studies	3	2	-	3	20	10	30	50	2.5	20	3	70	100
	Practicals													
4.5	Textile Printing	-	-	10	4	-	40	40	-	-	80	4	80	120
4.6	Textile Design -I	-	-	10	4	-	40	40	-	-	80	3	80	120
#Student Centered Activities (SCA)		-	-	5	1	-	30	30	-	-	-	-	-	30
Total		**15**	**8**	**25**	**24**	**80**	**120**	**200**	**200**	**-**	**180**	**-**	**380**	**580**

* Common with other diploma programmes

- **4 weeks Field Exposure (Professional Training)will be organised after 4th Semester exam. The evaluation of Field Exposure (Professional Training) will be done in 6th semester.**

Student Centered Activities will comprise of co-curricular activities like extension lectures, self study, games, hobby clubs e.g.photography etc., seminars, declamation contests, educational field visits, N.C.C., NSS, Cultural Activities, disaster management and safety etc.

FIFTH SEMESTER

Sr. No.	SUBJECTS	STUDY SCHEME Periods/Week			Credits	MARKS IN EVALUATION SCHEME								Total Marks of Internal & External
						INTERNAL ASSESSMENT			EXTERNAL ASSESSMENT					
		L	T	P/drg		Th	Pr	Tot	Th	Hrs	Pr	Hrs	Tot	
5.1	Textile Testing -I	4	2	-	4	20	-	20	50	2.5	-	-	50	70
5.2	Textile Design -II	4	2	-	4	20	-	20	50	2.5	-	-	50	70
5.3	Professional Studies	4	2	-	4	20	-	20	50	2.5	-	-	50	70
5.4	*Universal Human Values	2	-	1	1	-	20	20	-	-	30	3	30	50
5.5	^Advance Textile Printing	4	2	-	4	20	-	20	50	2.5	-	-	50	70
	Practicals													
5.6	Textile Design -II	-	-	10	4	-	50	50	-	-	100	4	100	150
5.7	Textile Testing-I	-	-	10	4	-	50	50	-	-	100	4	100	150
#Student Centered Activities (SCA)		-	-	1	1	-	30	30	-	-	-	-	-	30
Total		**18**	**8**	**22**	**26**	**80**	**150**	**230**	**200**	**-**	**230**	**-**	**430**	**660**

* Common with other diploma programme

Student Centered Activities will comprise of co-curricular activities like extension lectures, self study, games, hobby clubs e.g. photography etc., seminars, declamation contests, educational field visits, N.C.C., NSS, Cultural Activities, disaster management and safety etc.

^ By acquiring knowledge of this subject students will get the diploma in textile design with specialization in printing .

SIXTH SEMESTER

Sr. No.	SUBJECTS	STUDY SCHEME Periods/Week			Credits	MARKS IN EVALUATION SCHEME								Total Marks of Internal & External
						INTERNAL ASSESSMENT			EXTERNAL ASSESSMENT					
		L	T	P/drg		Th	Pr	Tot	Th	Hrs	Pr	Hrs	Tot	
6.1	*Energy Conservation	3	2	-	3	20	10	30	50	2.5	20	3	70	100
6.2	Garment & Fashion Studies	4	2	-	4	20	-	20	50	2.5	-	-	50	70
6.3	Textile Testing -II	4	2	-	4	20	-	20	50	2.5	-	-	50	70
6.4	Fabric Structure -II	4	2	-	4	20	-	20	50	2.5	-	-	50	70
	Practicals													
6.5	Textile Testing -II	-	-	8	3	-	20	20	-	-	40	6	40	60
6.6	Computer Aided Textile Design-II (CATD)	-	-	8	3	-	50	50	-	-	100	4	100	150
6.7	Project Work (i)Viva- Voce	-	-	6	4	-	50	50	-	-	125	Viva	125	175
	(ii) Field Exposure (Done after IV Sem.)	-	-	-	2	-	20	20	-	-	30	Viva	30	50
#Student Centered Activities (SCA)		-	-	3	1	-	30	30	-	-	-	-	-	30
Total		**15**	**8**	**25**	**28**	**80**	**180**	**260**	**200**	**-**	**315**	**-**	**515**	**775**

Student Centered Activities will comprise of co-curricular activities like extension lectures, self study, games, hobby clubs e.g. photography etc., seminars, declamation contests, educational field visits, N.C.C., NSS, Cultural Activities, disaster management and safety etc.

8. GUIDELINES FOR ASSESSMENT OF STUDENT CENTRED ACTIVITIES (SCA)

It was discussed and decided that the maximum marks for SCA should be 30 as it involves a lot of subjectivity in the evaluation. The marks may be distributed as follows:

i. 10 Marks for general behavior and discipline
(by HODs in consultation with all the teachers of the department)

ii. 5 Marks for attendance as per following:
(by HODs in consultation with all the teachers of the department)

iii. 15 Marks maximum for Sports/NCC/Cultural/Co-curricular/ NSS activities as per following:

(by In-charge Sports/NCC/Cultural/Co-curricular/NSS)

a)	15	-	State/National Level participation
b)	10	-	Participation in two of above activities
c)	5	-	Inter-Polytechnic level participation

Note: There should be no marks for attendance in the internal sessional of different subjects.

I-SEMESTER

1.1 *COMMUNICATION SKILLS – I

(Common to all Three Year Diploma courses)

L	T	P
4	-	2

RATIONALE

Knowledge of English Language plays an important role in career development. This subject aims at introducing basic concepts of communication besides laying emphasis on developing listening, speaking, reading and writing skills as parts of Communication Skill.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:

- Understand the importance of effective communication
- Describe the process of communication
- Communicate effectively in different contexts
- Identify parts of speech
- Write correct sentences using appropriate vocabulary
- Reproduce and match words and sentences in a paragraph
- Write various types of paragraphs, notices for different purposes and composition on picture with appropriate format
- Read unseen texts with comprehension

DETAILED CONTENTS

1 Basics of Communication

(13 periods)

1.1 Definition and process of communication

1.2 Types of communication - formal and informal, oral and written, verbal and non-verbal

1.3 Communications barriers and how to overcome them

1.4 Barriers to Communication, Tools of Communication

2	Application of Grammar		(18 periods)
	2.1	Parts of Speech (Noun, verb, adjective, adverb) and modals	
	2.2	Sentences and its types	
	2.3	Tenses	
	2.4	Active and Passive Voice	
	2.5	Punctuation	
	2.6	Direct and Indirect Speech	

3 Reading Skill (10 periods)

Unseen passage for comprehension (one word substitution,

prefixes, suffixes, antonyms, synonyms etc. based upon the passage to be covered under this topic)

4 Writing Skill

(15 periods)

4.1 Picture composition
4.2 Writing paragraph
4.3 Notice writing

LIST OF PRACTICALS

Note: Teaching Learning Process should be focused on the use of the language in writing reports and making presentations.

Topics such as Effective listening, effective note taking, group discussions and regular presentations by the students need to be taught in a project oriented manner where the learning happens as a byproduct.

Listening and Speaking Exercises

1. Self and peer introduction
2. Newspaper reading
3. Just a minute session-Extempore
4. Greeting and starting a conversation
5. Leave taking
6. Thanking
7. Wishing well
8. Talking about likes and dislikes
9. Group Discussion
10. Listening Exercises.

INSTRUCTIONAL STRATEGY

Student should be encouraged to participate in role play and other student centred activities in class room and actively participate in listening exercises

MEANS OF ASSESSMENT

− Assignments and quiz/class tests, mid-semester and end-semester written tests − Actual practical work, exercises and viva-voce
− Presentation and viva-voce

RECOMMENDED BOOKS

1. Communicating Effectively in English, Book-I by RevathiSrinivas; Abhishek Publications, Chandigarh.
2. Communication Techniques and Skills by R. K. Chadha; DhanpatRai Publications, New Delhi.
3. High School English Grammar and Composition by Wren & Martin; S. Chand & Company Ltd., Delhi.
4. Excellent General English-R.B.Varshnay, R.K. Bansal, Mittal Book Depot, Malhotra
5. The Functional aspects of Communication Skills – Dr. P. Prsad, S.K. Katria & Sons, New Delhi
6. Q. Skills for success – Level & Margaret Books, Oxford University Press.

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7. E-books/e-tools/relevant software to be used as recommended by
   AICTE/UPBTE/NITTTR.

Websites for Reference:

1. http://www.mindtools.com/ page 8.html – 99k
2. http://www.letstalk.com.in
3. http://www.englishlearning.com
4. http://learnenglish.britishcouncil.org/en/
5. http://swayam.gov.in

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	13	24
2	18	32
3	10	16
4	15	28
Total	**56**	**100**

1.2 TEXTILE MATERIALS

(Common to Three year Diploma course in Textile Design)

L	T	P
4	2	-

RATIONAL

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.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:

- To know about the various classifications of textile fibres, their origin,chemical nature, and properties etc.
- To know about the Indian & hybrid cotton varieties and their uses.
- To know about the Flax fibre, Linen fibre, Hemp,Ramie, Jute fibre, and their uses.
- To know about Wool fibre.
- To know about silk fibres.
- To know about Various regenerated Cellulosic fibers .
- To know about the manufacture of Nylon 6, Nylon 66, polyester, Acrylic fibresand their properties & uses.
- To know uses of fibrirs used in technical Textile ,

DETAILED CONTENTS

1- Introduction to world's sources of textile fibers (natural and manmade) and their utilization General classification of fibers.

2- Essential properties and uses of various varieties of cotton. Introduction to bast fibers; Flex, Jute, Hemp , Ramie, pineapple, Banana, Linen.

3- Introduction to natural silk. Rearing of silk worm. Properties and uses of various types of silk, silk reeling, Throwing and weighting.

4- Introduction to wool-merino Mohair, Kashmere, Camel andalpaca. sorting and grading of wool. Introduction towool fibre and elementary idea of different wool.

5- Introduction to Manmade fibers such as Nylons,Terelene, Acrylic and Rayons - Viscose, Acetate andCupramonium.

6- Introduction various to blends of the fibres, care offabrics, spots removing, types of removing agent.

7- Introduction to specialized fibers for technicaltextiles. Properties of specialized fibers such as Glassfibre, Aramide fiber, etc

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
6. वस्त्र रेशे –उत्पादन विशेषताएँ एवं उपयोग – DR. D.B. Shakyawar & Dr. M.K. Singh , abhishek Publication Chandigarh/ New Delhi.
7. Textile Fibres –I By Dr. V.A. Shenai
8. H V S Murthy, Textile Fibres- Textile Association Publication 1995.
9. S. P. Mishra, A text book of Fibres Science and technology, New Age International (p) Ltd 2000.
10. Gordon & Cook, Hand Book of Fibres, Vol I & II Merow Publication Ltd
11. W.E. Morton & JWS Hearle, Physical properties of textile fibres, Textile Institute, U.K.
12. Progress in textiles: Science and Technology Vol.-2 by Dr. VK Kothari, IIT Delhi.
13. R.W. Moncrieff, Man-Made Fibres- Heywood Books

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time allotted (Periods)	Marks Allotted (%)
1.	12	10
2.	12	15
3.	12	15
4.	12	15
5	12	15
6	12	15
7	12	15
Total	**84**	**100**

1.3 PRINCIPLES OF DESIGN & SKETCHING

(Common to Three year Diploma course in Textile Design)

L	T	P
4	2	-

RATIONAL :

The Fundamental of design skills is the vital part of The Textile Design process, which develops the better understanding and skill to make a foundation for design which is aesthetically expresses the specific meaning.

LEARNING OUTCOMES

- After completing the course, the students will be able to: Identify Drawing tools and Mediums used and their respective functions.
- Developing a visual literacy about our surroundings.
- Identifying the use of various elements and principles in the design.
- Effectively using the various measurement systems on the drawing .
- Using various mediums of presentation for sketching and drawings.

DETAIL CONTENT

1- INTRODUCTION TO ART AND DESIGN :
Difference between art and design, Type of Designs .

2- INTRODUCTION TO ART MATERIALS :
Pencils, Types of colour (Poster, Water, Pencil, etc.),Paper and other materials, Compass and liner, T-squire, Set-squire, Drawing board.

3- STUDY OF LINES & DOTS :
Types of lines, Psychological and visual association.

4- STUDY OF SHAPES :
Types of shapes, Psychological and visual association.

5- STUDY OF COLOURS :
Colour wheel, Light theory of colour, Pigment theory of colour, Primary, Secondary, Tertiary, Monochromatic, Complementary, Analogous, Achromatic, Colour psychology and visual effects.

6- STUDY OF TEXTURE :
Types of texture, Categories of texture, Psychological andVisual association.

7- STUDY AND UNDERSTANDING OF PRINCIPLES OF DESIGN :
Rhythm, Harmony, Emphasis, Balance, Repetition, Gradation, Radiation,Negative and positive sapec, Proportion.

8- AESTHETIC QUALITIES OF DESIGN ELEMENTS :

Formal qualities (Tradition, Geometric), Expressivequalities (Modern,Realistic), Symbolic qualities (Abstract,Folk).

NOTE : No examination question from sketching. The aim here is to familiarize the students with various sketching techniques and materials and thereby develop an acumen for sketching through observation of both the natural and man-made environment. Ultimately these sketching techniques shall help to develop the students design ability.

INSTRUCTIONAL STRATEGY

Student should be encouraged to participate in role play and other student centered activities in class room and actively participate in Pencil diagram and sketching exercises. The Student should be encouraged to draw on daily basis, at least 2 sketches of any object/ natural surroundings/ Human sketch/ buildings/ interior sketches in the sketch book

MEANS OF ASSESSMENT

Assignments and quiz/class tests, mid-semester and end-semester written tests– Actual practical work, exercises and viva-voce– Presentation on the drawing sheets–

RECOMMENDED BOOKS

1. "Rendering with Pencil and Ink" by Gill Robert W., Published by Thomos and Hudson, New Delhi
2. "Learning Curves" by Klara Sjolen and Allan Mcdonalds By Perfect Paperback Publishers.
3. "The Complete Book of Drawing" by Barrington Barber By Perfect Paperback Publishers.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time allotted (Periods)	Marks Allotted (%)
1.	9	10
2.	12	15
3.	9	10
4.	9	10
5	12	15
6	9	10
7	12	15
8	12	15
Total	84	**100**

1.4 BASIC DESIGN & SKETCHING

(Common to Three year Diploma course in Textile Design)

L	T	P
-	-	13

RATIONALE:

Diploma holder 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 art-materials

LEARNING OUTCOMES

After completing the course, the students will be able to:

- Identify Drawing tools and Mediums used and their respective functions.
- Developing a visual literacy about our surroundings.
- Developing a sense of appreciation for the built environment
- Identifying the use of various elements and principles in the design
- Effectively using the various measurement systems on the drawing .
- To develop an art of visualizing 3-D objects through their 2-D drawings and projections
- Using various mediums of presentation for sketching and drawings.

DETAIL CONTENT

1- Interpretation of single line, lines and using many linesfor specific expression ,2 Total number of lines, 3 each with appropriate emotional orpsychological expression.

2- Conversion of shapes from natural to geometric and abstractany one natural shape to be converted in 6 different forms of geometrical and abstract.

3- Organizing these shapes in a given area to create motif.

4- Drawing colour wheel that includes primary, secondary andtertiary colours.

5- Rendering value scale for value and intensity of each colorfrom the color wheel in the circular chart form, Monochromatic,

complementary, split complementary, analogous, achromatic, primary, secondary, tertiary color schemes will be rendered in 2"X2" block.

6- Understanding of various types of design: Traditional. - Modern, realistic, Abstract, Folk, Geometric, Total number of variations at list 6 No

Note:
Students should be taken for field visits, museums, exhibitions, market, etc for
clarifying the concepts and principles of this course as per requirement.

RECOMMENDED BOOKS

1. The Encyclopaedia 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 Varsall; BT Batsford Ltd., London
4. Designer's Guide to Japanese Patterns by Jeanne Allen; Chronicle Books, San Francisco
5. Handwoven 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 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. 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, 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

1.5 IDENTIFICATION OF TEXTILE MATERIALS

(Common to Three year Diploma course in Textile Design)

L	T	P
-	-	8

RATIONALE:

It is the further addition of knowledge of the subject Textile Materials. In this the students will be practically acquitted with the materials used in textile fabrics.

LEARNING OUTCOMES :

After completing the course, the students will be able to :

1. Identify various textile fibers by their feel and appearance .
2. Identify various textile fibers by their burning behavior.
3. Identify various textile fibers by their longitudinal and cross sectional view under microscope .
4. Identify various textile fibers by their chemical analysis .

DETAIL CONTENTS

Inspection and Identification of various types of textile materials covered in the subject.

All experiments to be done with respect to below listed fibers

a. Cotton
b. Wool
c. Silk
d. Jute
e. Linen
f. Polyester
g. Acrylic
h. Viscose
i. Nylon
1. To Study feel & appearance of textile fibers
2. To study burning behavior of Textile Fibers
3. To observe various fibers under microscope and study their longitudinaland cross sectional view
4. Chemical analysis of textile fibers.

RECOMMENDED BOOKS-

1. H V S Murthy, Textile Fibres- Textile Association Publication 1995.
2. R.W. Moncrieff, Man-Made Fibres- Heywood Books
3. Textile Fibre by ATIRA
4. Textile Fibre by VA Shenai

1.6 *BASICS OF INFORMATION TECHNOLOGY

(Common to all Three Year Diploma courses)

L	T	P
-	-	6

RATIONALE:

Information technology has great influence on all aspects of life. Primary purpose of using computer is to make the life easier. Almost all work places and living environment are being computerized. The subject introduces the fundamentals of computer system for using various hardware and software components. 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 information technology and its scope; operating a computer; use of various tools using MS Office/Open Office/Libre Office using internet etc., form 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:

Explanation of Introductory part should be demonstrated with practical work. Following topics may be explained in the laboratory along with the practical exercises. There will not be any theory examination.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:

- Identify Computer Hardware Components, Network Components and Peripherals.
- Explain the role of an Operating System.
- Install System and Application Software.
- Explain the function of the system components including Processor, Motherboard and Input-output devices.
- Use Word Processing Software to prepare document.
- Use Spreadsheet Software to create workbooks and automate calculation.
- Use Presentation Software to create interactive presentation.

- Perform fundamental tasks common to most application software including print, scan, save, edit, cut, copy, paste, format, spell and grammar check.
- Find and evaluate information on the Web.
- Install Antivirus.
- Safeguard against Online Frauds, threats and crimes.
- Use online office tools(Google suits)

TOPICS TO BE EXPLAINED THROUGH DEMONSTRATION

1. Introduction to Computers and Peripherals.

   Components of Computer, Types of Computer, CPU, RAM, ROM, Hard disk, USB, Flash drive, CD, DVD,Blue ray, Keyboard, Mouse, Monitor, LCD, Printer, Plotter, Scanner, Modem, Sound Cards, Speakers, CMOS battery, Sharing of Printers.

2. Operation System and Application Software

   System Software, Application Software, Virtualization Software, Utility Software, MS Office/Open Office/ Libre office, Working with window, Desktop components, Menu bars, creating shortcut of program. Installation of Application software , Antivirus and Drivers.

3. Word Processing, Spreadsheet and Presentation

   Usage and creation of word document, spreadsheets and presentation, Google Suits (Google drive, google sheet, google doc. Google presentation)

.

4. Internet

   Basics of Networking – LAN, WAN, Wi-Fi technologies, Concept of IP Addrsses, DNS, Search Engines, e-mail, Browsing and cyber laws.

LIST OF PRACTICAL EXERCISES

1. Identify various components, peripherals of computer and list their functions.
2. Installation of various application software and peripheral drivers

3. Installation of operating system (windows/linux/others)
4. Creation and Management (Rename, delete, search of file and folders)
5. Installation of Antivirus and remove viruses
6. Scanning and printing documents
7. Browsing, Downloading, Information using Internet
8. E-Mail ID creation, comparing, sending and receiving e-mail. Attaching a file with e-mail message.
9. Word Processing (MS Office/Open Office)

a) File Management

- Opening, creating and saving a document, locating files, copying contents in some different file(s), protecting files, giving password protection for a file

b) Page set up

- Setting margins, tab setting, ruler, indenting

c) Editing a document

- Entering text, cut, copy, paste using tool- bars

d) 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, line spacing
- Use of headers, footers: Inserting footnote, end note, use of comments, autotext
- Inserting date, time, special symbols, importing graphic images, drawing tools

e) 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 set up, printing options
- Using find, replace options

f) Using Tools like

- Spell checker, help, use of macros, mail merge, thesaurus word content and statistics, printing

envelops and lables

- Using shapes and drawing toolbar,
- Working with more than one window .

10. Spread Sheet Processing (MS Office/Open Office/Libre Office)

a) Starting excel, open worksheet, enter, edit, data, formulae to calculate values, format data, save worksheet, switching between different spread sheets

b) Menu commands:
Create, format charts, organise, manage data, solving problem by analyzing data. Programming with Excel Work Sheet, getting information while working

c) Work books:

Managing workbooks (create, open, close, save), working in work books, selecting the cells, choosing commands, data entry techniques, formula creation and links, controlling calculations
Editing a worksheet, copying, moving cells, pasting, inserting, deletion cells, rows, columns, find and replace text, numbers of cells, formatting worksheet, conditional formatting

d) 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

e) Retrieve data with query:
Create a pivot table, customizing a pivot table. Statistical analysis of data

f) Exchange data with other application:
Embedding objects, linking to other applications, import, export document.

11. PowerPoint Presentation (MS Office/Open Office/Libre office)

a) Introduction to PowerPoint
- How to start PowerPoint
- Working environment: concept of toolbars, slide layout & templates.
- Opening a new/existing presentation
- Different views for viewing slides in a presentation: normal, slide sorter.

b) Addition, deletion and saving of slides

c) Insertion of multimedia elements
- Adding text boxes
- Adding/importing pictures
- Adding movies and sound
- Adding tables and charts etc.
- Adding organizational chart
- Editing objects
- Working with Clip Art

d) Formatting slides
- Using slide master
- Text formatting
- Changing slide layout
- Changing slide colour scheme
- Changing background
- Applying design template

12. Google Suits
Using Google drive, Google shut, Google docs, Google slides.

INSTRUCTIONAL STRATEGY

Since this subject is practice oriented, the teacher should demonstrate the capabilities of computers to students while doing practical exercises. The students should be made familiar with computer parts, peripherals, connections and proficient in making use of MS Office/Open Office/Libre office/Google Suit in addition to working on internet. The student should be made capable of working on computers independently.

MEANS OF ASSESSMENT

- Class Tests/Quiz
- Software Installation and Use
- Viva-Voce
- Presentation

RECOMMENDED BOOKS

1. Fundamentals of Computer by V Rajaraman; Prentice Hall of India Pvt. Ltd., New Delhi
2. Information Technology for Management by Henery Lucas, Tata McGraw Hills, New Delhi
3. Computers Fundamentals Architecture and Organisation by B Ram, revised Edition, New Age International Publishers, New

Delhi
4. Computers Today by SK Basandara, Galgotia publication Pvt Ltd. Daryaganj, New Delhi.
5. Internet for Every One by Alexis Leon and Mathews Leon; Vikas Publishing House Pvt. Ltd., Jungpura, New Delhi
6. A First Course in Computer by Sanjay Saxena; Vikas Publishing House Pvt. Ltd., Jungpura, 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
9. On Your Marks - Net…Set…Go… Surviving in an e-world by Anushka Wirasinha, Prentice Hall of India Pvt. Ltd., New Delhi
10. Fundamentals of Information Technology by Vipin Arora, Eagle Parkashan, Jalandhar

Reference websites

1. www. tutorialspoint..com
2. www.sf.net
3. Gsuite.google.com
4. Spoken-tutorial.org
5. Swayam.gov.in

II - SEMESTER

2.1 YARN MANUFACTURING PROCESS

(Common to Three year Diploma course in Textile Design)

L	T	P
4	2	-

RATIONALE

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

LEARNING OUTCOMES

After undergoing the subject, the students will be able to learn Types of yarn and their uses along with brief idea of manufacturing, Numbering system and characteristics .

DETAILED CONTENTS

1. Flow chart of the processes involved in the Conversion of fibers into Combed & Carded Yarn and objective of different processes.
2. Brief study and working principles of blow room and carding.
3. Brief description and working of draw frame, combing and speed frame.
4. Brief description and working of ring frame, doubling frame and reeling.
5. Brief introduction of open end Spinning and their properties
6. Types of yarn, Yarn faults and and their uses ,
7. Numbering system of yarns.

INSTRUCTIONAL STRATEGY

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. A.R. Khare (All Books)
2. P. Venkat Subramaniam

Corrected and Approved by Board of Technical Education, U.P., Lucknow in CDC Meeting held on 19.08.2023

3. W. Klein, The Textile Institute Publication –Manual of Textile Engineering-Short Staple Spinning Series Vol. I to V.
4. 'The Characteristics of Raw Cotton' by P. Lord. The Textile Institute Publication, Manual of Cotton Spinning Vol. II, Part-I.
5. 'Opening and Cleaning' by Shirley. The Textile Institute Publication, Manual of Cotton Spinning Vol. II, Part-II.
6. Carl Lawrence, Fundamentals of Spun Yarn Technology.
7. 'Opening Cleaning and Picking' by Dr. Zoltan S. Szaloki, Institute of Textile Engineering, Virginia.
8. 'Cotton Ginning' Textile Progress, The Textile Institute Publication.
9. Blow-room and Carding- Training Programme conducted by NCUTE, IIT, Delhi.
10. Essential calculations of practical cotton spinning by TK Pattabhiraman.
11. Carding by F.Charanlay. TheTextile Institute publication, Manual of cotton spinning series Vol III
12. Zoltan, S. Szaloky,Drawing, Combing and roving and speed frame, The Institute of Textile Engineering, Verginia.
13. J.H. Black, Draw frame, combing and speed frame, The Textile Institute publication, Manual of cotton spinning Vol-IV Part II.
14. cotton spinning by ATIRA

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	**Time allotted (Periods)**	**Marks Allotted (%)**
1.	15	15
2.	15	20
3.	18	20
4.	18	20
5	18	25
Total	84	**100**

2.2 INDIAN TRADITIONAL DESIGN

(Common to Three year Diploma course in Textile Design)

L	T	P
4	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.

LEARNING OUTCOMES –
After undergoing the subject, the students will be able to:

1- Know about traditional Textile of india

2- Understand motifs and color themes used in Textile Design

3- Understand various construction techniques used .

4- Know the history ,origin and centers of Production

5- Identify the various kinds of Indian traditional textile .

DETAILED CONTENTS

1. INTRODUCTION TO INDIAN WOVEN TEXTILE :

   Historical significance, Construction techniques, Styles,Colours and Motifs, Centers of production.

2. DYEING AND PRINTING IN INDIA :

   Historical significance, Construction techniques, Styles,Colours and Motifs, Centers of production.

3. The following topics should be covered in History of textile.

   Phulkari Kashmir embroidary Chickankeri Bengal Kantha Sanganari Kalamkari Patola Bandhani Ikat Varanasi Brocades

Jamdani Chanderi Kanchipuram Baluchar Madhubani, carpet & floor covering .

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 Chattapodya
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. 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 Textile of India. Calico Masam of India
23. Costumes and Textiles of India by Parul Bhatnagar; Abhishek Publisher, Chandigarh

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time allotted (Periods)	Marks Allotted (%)
1.	15	20
2.	15	20
3.	54	60
Total	**84**	**100**

Corrected and Approved by Board of Technical Education, U.P., Lucknow in CDC Meeting held on 19.08.2023

2.3 FABRIC MANUFACTURING PROCESS-I

(Common to Three year Diploma course in Textile Design)

L	T	P
4	2	-

RATIONALE :

Aim of this paper is to give new entrants in the field oftextile first hand knowledge of principles and processes involvedin preparation for weaving .

LEARNING OUTCOMES

After undergoing the subject, the students will be able :

- To know the objective of winding.
- To know about different types of Tensioning devices and their uses.
- To understand about yarn clearers and package faults.
- To know about High speed warping machine, salient features – Faults on.
- To understand about, Sizing ingredients, their functions and importance.
- To understand about the Sizing process and various controls.
- To know about Drawing-in Denting, Read count, head count

DETAILED CONTENTS

1 . Weaving Preparation :

1.1 Flow chart of the process involved in preparation for weaving.

1.2 i. Winding :

Its object, types on basis of machine speed and winding packages, passage of material through winding machine (slow speed) and any high speed drum winding machine.

ii. faults found in winding package .

iii. General idea of pirn winding and its need and advantage.

2- Warping :- Its main objects , general idea of beam and sectional warping machine .

3- Sizing :- Its main objects , methods of sizing on the basis of drying system used for drying wet yarn and on the basis of amount of size put on the yarn .

ii- Sizing ingredients for cotton and cotton blends .

iii- Passage of warp sheet through slasher sizing machine and knowledge of necessary part of machine .

4- Drawing in & Beaming :- main objects , different method used in textile industry, concept of reed and head count .

RECOMMENDED BOOKS

1. 1.Yarn Preparation-Vol-I & II by Sengupta.
2. Fibre to Fabric by PR Lord
3. An introduction to winding & warping by M.K.Talukdar,
4. 4. Modern preparation & weaving machinery, by A. Ormerod, Textile Institute, U.K. .
5. Yarn winding by Banerjee and Alagirusamy (NCUTE publication).
6. Industrial practices in weaving preparatory by M.K. Singh, Woodhead Publication.
7. Weaving: Conversion of Yarn to Fabric by Lord and Mohamed,
8. Winding &Warping by Talukdar MK.
9. Cotton Weaving by ATIRA

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time allotted (Periods)	Marks Allotted (%)
1.	27	30
2.	15	20
3.	27	30

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4.	15	20
Total	84	**100**

2.4 DRAWING, RENDERING & STUDY OF OBJECTS

(Common to Three year Diploma course in Textile Design)

L T P
- - 12

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 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.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to :

- Understand the Meaning of drawing and rendering.
- Draw, render and study of related Design features.

DETAILED CONTENTS

1- INTRODUCTION TO SKETCHING :

Meaning and difference between sketching and drawing

2- INTRODUCTION TO DRAWING :
How to draw.

3- DRAWING IN AN ACTIVE ENVIRONMENT :

This is to develop the students skills in quick sketching.

4- STUDY OF OBJECTS:

Handling of different media in black and white and also incolor i.e pencil, charcoal, pen and ink, brush and ink,water color, pastels and mixed media.

STUDY OF THE FOLLOWING :

Students will make various motifs with coloured pictures on given suggested themes.

i- Flower heads.
ii- Vegetables with green leaves.
iii- Creepers with flowers.
iv- Sea shells
v- Sea animals,
vi- Animals
vii- Feathers.
viii- Monuments and Building
ix- Pottery

- Understanding of basic shapes in perspective, concept ofillusion in art expression, three dimensional effect.
- Composition of any three forms from Design Point of Viewwith Water and Poster Colours, on 1/4, imp, sheets.
- Composition of Cross Sectional forms from Design Point ofView with Pen and Ink on 1/4, imperial sheet

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.

2.5 INDIAN TRADITIONAL DESIGN

(Common to Three year Diploma course in Textile Design & Textile Design)

L	T	P
-	-	12

RATIONALE :

The developmental history of textiles proves many times more enlightening to deal and solve even the present dayproblems. So its importance can not be ignored

DETAILED CONTENTS

Visualization of the design on sheet for various Traditional design covered in Indian traditional textile theory paper

1- Phulkari
2- Kashmir embroidery
3- Chickankeri
4- Bengal Kantha
5- Sanganari
6- Kalamkari
7- Patola
8- Bandhani
9- Ikat
10- Varanasi Brocades
11- Jamdani

12- Chanderi
13- Kanchipuram
14- Baluchar
15- Madhubani,
16- carpet & floor covering

INSTRUCTIONAL STRATEGY

Note: Students should be taken for field visits to various production centres to show the samples of the 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.

Semester-III

3.1 TEXTILE COLOURATION

(Common to Three year Diploma course in Textile Design)

L	T	P
4	2	-

RATIONALE :

The purpose of colouring textile is to make it attractive toeyes. There are many a techniques & procedures developed forcolouring & dyeing the fabrics made of various kinds of fibres.There knowledge is essential for decorating the product to suit the mood and taste of the consumer.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:

1- Understand pretreatment of textiles
2- Know classes of natural and synthetic dyes and their applications
3- Know different dyeing machines used for dyeing
4- Know difficulties in dyeing and their remedies
5- Know various colour fastness and their testing

DETAILED CONTENTS

DETAILED CONTENTS :

1. Preparatory processes, Singeing, designing, scouring and bleaching for cotton, wool and silk.
2. Brief study on the necessity and use of optical whitening agents.
3. Classification of dyes according to application, Principal classes of natural and synthetic dyes.
4. Definition of Dyeing, methods of dyeing.
5. Principal classes of dyes used for cotton, wool, silk and synthetic fibers, limitations of dyestuffs on different fabrics.
6. Common methods of dyeing cotton with direct vats and napthol colours, wool dyeing with acid and manmade colours polyester by disperse, use of assistant & textile auxiluries in dyeing.
7. Introduction to different dyeing machines like Jiggar, Padding mangle winch, infrared dyeing machine, Jet dying & HTHP.
8. Difficulties in dyeing synthetic fibres by the common methods and ways of overcoming them.
9. Introduciton to different colour fastness and Factors affecting colour fastness.

INSTRUCTIONAL STRATEGY

Student should be encouraged to participate in role play and other student centred activities in
class room and actively participate in listening exercises

MEANS OF ASSESSMENT

- Assignments and quiz/class tests, mid-semester and end-semester written tests
- Actual practical work, exercises and viva-voce
- Presentation and viva-voce

RECOMMENDED BOOKS

1. Chemical processing of synthetic fibres and blends by Datye & Vaidya
2. Technology of bleaching Vol. 3 by V A Shenai
3. Textile scouring and bleaching by ER Trotman
4. Bleaching and mercerization by JT Marsh
5. Chemical processing of cotton and p/c blends - ATIRA
6. A glimpse on the chemical technology and textile fibres by RR Chakraborty
7. Technology of Dyeing by VA Shenai
8. Chemical technology of fibrous material by F. Shadov
9. Fundamentals and practices in colouration of textiles by J.N. Chakraborty

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	10	10
2	4	6
3	6	8
4	6	8
5	10	12
6	16	18
7	16	18
8	8	10
9	8	10
Total	**84**	**100**

3.2 FABRIC STRUCTURE-I

(Common to Three year Diploma course in Textile Design)

L	T	P
4	2	-

RATIONALE :

The importance of the paper lies in the fact that itintroduces the reader with different varieties of the fabric anddesigns and related technical terminology. Knowledge of fabric structure may vary on the basis of textile designer's working and innovative ideas.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:

1- To understand about classification of woven fabrics.
2- To understand various technical items used in cloth construction.
3- To understand about ornamentation of woven fabrics.
4- To understand about elementary weaves.
5- To understand about towel and crepe weaves.

DETAILED CONTENTS

1. Classification of woven fabrics.

2. Introduction to technical terms used in clothconstruction. Warp, weft, ends, picks, weave, design, repeat of design draft, peg plan and denting plan.

3. Methods of ornamenting a fabric.

4. Plain weave and its derivatives i.e. warp rib, weft rib,and matt or hopsack or basket.

5. Regular twill weaves and their derivatives such Pointed,Herring bone, Zigzag-wavy, Curved Broken, Re-arranged, Fancy twill, Combined twill and Diamonds.

6. Satin and sateen weaves, cork screw twills, Crepe weaves etc.

7. Toweling weaves-Huckaback, honeycomb and brightenhoneycomb.

INSTRUCTIONAL STRATEGY

Student should be encouraged to participate in role play and other student centered activities in class room and actively participate in listening exercises

MEANS OF ASSESSMENT

– Assignments and quiz/class tests, mid-semester and end-semester written tests
– Actual practical work, exercises and viva-voce
– Presentation and viva-voce

RECOMMENDED BOOKS

1. Fabric Structure and Design by N.Gokarveshan
2. Watson's textile design & colour by Z.J.Grosicki.
3. Woven fabric structure design and product planning by Dr. J. Hayavadana
4. Mastering weaves structure- Sharon Alderman-Inter weave Press

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	6	8
2	8	10
3	6	8
4	16	18
5	16	20
6	16	18
7	16	18
Total	**84**	**100**

*3.3 COMMUNICATION SKILLS – II

(Common to all Three Year Diploma courses)

L	T	P
4	-	2

RATIONALE

Knowledge of English Language plays an important role in career development. This subject aims at introducing basic concepts of communication besides laying emphasis on developing listening, speaking, reading and writing skills as parts of Communication Skill.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:

- Frame correct sentences with illustrations
- Comprehend the language correctly
- Interpret the language correctly
- Use given material in new situations.
- Correspond effectively using various types of writings like letters, memos etc.
- Communicate effectively in English with appropriate body language making use of correct and appropriate vocabulary and grammar in an organised set up and social context.

DETAILED CONTENTS

1. Functional Grammar (16 periods)
   - 1.1 Prepositions
   - 1.2 Framing Questions
   - 1.3 Conjunctions
   - 1.4 Tenses

2 Reading (16 period)

2.1 Unseen Passage for Comprehension (Vocabulary enhancement - Prefixes, Suffixes, one word substitution, Synonym and Antonym) based upon the passage should be covered under this topic.

3 Writing Skill
(24 periods)

3.1. Correspondence

a) Business Letters- Floating Quotations, Placing Orders, Complaint Letters.

b) Official Letters- Letters to Government and other Offices

3.2. Memos, Circular, Office Orders

3.3. Agenda & Minutes of Meeting

3.4. Report Writing

LIST OF PRACTICALS

Note: Teaching Learning Process should be focused on the use of the language in writing reports and making presentations.
Topics such as Effective listening, effective note taking, group discussions and regular presentations by the students need to be taught in a project oriented manner where the learning happens as a byproduct.

Speaking and Listening Skills

1. Debate
2. Telephonic Conversation: general etiquette for making and receiving calls
3. Offering- Responding to offers.
4. Requesting – Responding to requests
5. Congratulating
6. Exploring sympathy and condolences
7. Asking Questions- Polite Responses
8. Apologizing, forgiving
9. Complaining
10. Warning
11. Asking and giving information
12. Getting and giving permission
13. Asking for and giving opinions

INSTRUCTIONAL STRATEGY

Students should be encouraged to participate in role play and other student-centered activities in class rooms and actively participate in listening exercises

MEANS OF ASSESSMENT

- Assignments and quiz/class tests, mid-semester and end-semester written tests
- Actual practical work, exercises and viva-voce
- Presentation and viva-voce

RECOMMENDED BOOKS

1. Communicating Effectively in English, Book-I by RevathiSrinivas; Abhishek Publications, Chandigarh.

2 Communication Techniques and Skills by R. K. Chadha; Dhanpat Rai Publications, New Delhi.

3 High School English Grammar and Composition by Wren & Martin; S. Chand & Company Ltd., Delhi.

4. e-books/e-tools/relevant software to be used as recommended by AICTE/NITTTR, Chandigarh

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Websites for Reference:

1. http://www.mindtools.com/ page 8.html – 99k
2. http://www.letstalk.com.in
3. http://www.englishlearning.com
4. http://learnenglish.britishcouncil.org/en/
5. http://swayam.gov.in

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	16	28
2	16	28
3	24	44
Total	**56**	**100**

3.4 TEXTILE COLOURATION (Lab)

(Common to Three year Diploma course in Textile Design)

L	T	P
-	-	10

RATIONALE :

The purpose of colouring textile is to make itattractive to eyes. There are many a techniques &procedures developed for colouring & dyeing the fabrics made of various kinds of fibers. There knowledge isessential for decorating the product to suit the moodand taste of the consumer.

Dyeing of yarn's and cloths covered in the course.Matching of shade cotton, silk, wool, nylon, polyester, viscos etc.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:
1- Understand pretreatment of textiles
2- Know classes of natural and synthetic dyes and their applications
3- Know different dyeing machines used for dyeing
4- Know difficulties in dyeing and their remedies
5- Know various colour fastness and their testing

DETAILED CONTENTS

1. Desizing, scouring, and bleaching of cotton, wool, silk fabrics

2. Dyeing of cotton with direct, reactive, vat dyes.

3. Dyeing of wool with acid dye.

4. Dyeing of silk

5. Dyeing of acrylic

6. Dyeing of nylon

7. Dyeing of polyester with disperse dye

8. Dyeing of P/C blend

9. Color matching of samples.

INSTRUCTIONAL STRATEGY

Student should be encouraged to participate in role play and other student centered activities in
class room and actively participate in listening exercises

MEANS OF ASSESSMENT

- Assignments and quiz/class tests, mid-semester and end-semester written tests
- Actual practical work, exercises and viva-voce
- Presentation and viva-voce

RECOMMENDED BOOKS

1. Chemical processing of synthetic fibers and blends by Datye & Vaidya
2. Technology of bleaching Vol. 3 by V A Shenai
3. Textile scouring and bleaching by ER Trotman
4. Bleaching and mercerization by JT Marsh
5. Chemical processing of cotton and p/c blends - ATIRA
6. A glimpse on the chemical technology and textile fibres by RR Chakraborty
7. Technology of Dyeing by VA Shenai
8. Chemical technology of fibrous material by F. Shadov
9. Fundamentals and practices in colouration of textiles by J.N. Chakraborty

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	15	11
2	15	11
3	15	11

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4	15	11
5	15	11
6	15	11
7	15	10
8	15	10
9	20	14
Total	**84**	**100**

3.5 FABRIC ANALYSIS

(Common to Three year Diploma course in Textile Design)

L T P
- - 10

RATIONALE-

The importance of the paper lies in the fact that itintroduces the reader with different varieties of the fabricand designs and technical terminology knowledge of these things vary base of textile designer's working.

Analysis of fabrics Covered in the course for their manufacturing particulars. Construction particulars such asidentification of warp and weft, direction, face and back ofthe fabric ends per inch, warp and weft, warp and weft twistdirection and ply. Warp crimp percentage and weft crimppercentage, weave weight per square yard and meter ofcommon use fabrics.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:
1- To understand about classification of woven fabrics.
2- To understand various technical items used in cloth construction.
3- To understand about ornamentation of woven fabrics.
4- To understand about elementary weaves.
5- To understand about towel and crepe weaves.

DETAILED CONTENTS

1. Preparation of samples of elementary weaves.

2. Analysis of different cloth weaves.

INSTRUCTIONAL STRATEGY

Student should be encouraged to participate in role play and other student centered activities in class room and actively participate in listening exercises

MEANS OF ASSESSMENT

- Assignments and quiz/class tests, mid-semester and end-semester written tests
- Actual practical work, exercises and viva-voce
- Presentation and viva-voce

RECOMMENDED BOOKS

1. Fabric Structure and Design by N.Gokarveshan
2. Watson's textile design & colour by Z.J.Grosicki.
3. Woven fabric structure design and product planning by Dr. J. Hayavadana
4. Mastering weaves structure- Sharon Alderman-Inter weave Press

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1.	70	50
2.	70	50
Total	**140**	**100**

3.6 COMPUTER AIDED TEXTILE DESIGN-I (CATD)

(Common to Three year Diploma course in Textile Design)

L	T	P
-	-	8

RATIONALE :

In today's world Computer Aided Textile Designing (CTAD)becomes versatile for all the designing and weavingindustry. Designing with the help of computer is becomingmore relevant with time. The main objective of teachingthis subject t is to develop skill of designing usingdifferent software of t textile design in the students.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:
1-Develop patterns
2-Scan image and edit scanned image.
3-Develop textile motifs

COREL DRAW SOFTWARE : Vector graphics software (corel draw/inkscape).

PHOTOSHOP SOFTWARE : Raster photo editing software (photoshop/GIMP).

Learn Step by step command :
Experiment are given below

1. Pattern Generation
2, Scanning
3. Editing Scanning Image
4. Sketch Formation
5. Colouring
6. Flowers and twigs
7. Bi-symmetrical
8. Multi-symmetrical
9. Stripe and check pattern- Regular, Irregular, Counter, change, Graduated, Modified forms.
10. Design Modification (Repeat).

INSTRUCTIONAL STRATEGY

Student should be encouraged to participate in role play and other student centred activities in
class room and actively participate in listening exercises

MEANS OF ASSESSMENT

– Assignments and quiz/class tests, mid-semester and end-semester written tests
– Actual practical work, exercises and viva-voce
– Presentation and viva-voce

RECOMMENDED SOFTWARES

1. Corel Draw Software
2. Inkscape Software
3. Photoshop
4. GIMS

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	10	10
2	8	10
3	10	10
4	8	10
5	8	10
6	8	10
7	15	10
8	15	10
9	15	10
10	15	10
Total	**112**	**100**

4.1 TEXTILE PRINTING

(Common to Three year Diploma course in Textile Design)

L	T	P
4	2	-

RATIONAL :

Printing of fabrics for making it attractive is an art andthere is no end to development of technologies for the process.The paper is meant to give an insight of the means and methodsused in printing.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:

1- **Understand preparation of cloth for printing process**
2- Know different printing methods available
3- Know different chemicals and agents used for printing and composition of printing paste
4- Know various styles of printing
5- Know printing procedures for various fibres
6- Know printing defects and their remedies
7- Know finishing and costing of the printed fabric

DETAILED CONTENTS

1. Preparation of cloth for printing.
2. Printing methods-Block, Screen, Stencil (or spray) and Transfer. Limitations as well as advantages of different printing methods.
3. Composition of printing paste
A. Classification of thickening agents, preparation of thickening paste.
B. Solvents, Hygroscopic agents, Alkalics, Oxidising and reducing agents and binders.
C. Printing paste composition, its calculation based on coverage.
4. Different styles of Printing, Direct Discharge and resist printing styles; underlying principles and methods. (the above study will be with respect to cotton, silk, viscos and synthetics fabrics).
5. Brief study of wool printing (use of Chlorination Prior to printing).
6.A. Batik Printing - Ingreidents used and their preparation.
B. Tye and dye style of printing.
7. Processes of developing forms and surfaces, repeat for Block, Screen and Printing in fabrics covering factors of different colours and patterns for above methods.
8. After treatments : such as steaming, curing, ageing, Soaping and Washing.
9. Various defects in Printing and their remedies.
10. Introduction to digital printing and their pre and post finishing treatments.
11. Introduction to textile finishing i.e. calendering, milling, sonforizing,

mercerizing, parchmentizaing and weighting of silk.

INSTRUCTIONAL STRATEGY

Student should be encouraged to participate in role play and other student centred activities in
class room and actively participate in listening exercises

MEANS OF ASSESSMENT

- Assignments and quiz/class tests, mid-semester and end-semester written tests
- Actual practical work, exercises and viva-voce
- Presentation and viva-voce

RECOMMENDED BOOKS

1. Textile printing by Leslie W.C. Miles
2. Pretreatment of textile materials for dyeing and printing by Dr.M.S.Parmar published by NITRA
3. Introduction to textile finishing by J.T. Marsh
4. Textile finishing by V.A. Shenai
5. Principles of textile printing by Asim Kumar Roy Choudhury

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	8	10
2	8	10
3	8	10
4	8	10
5	8	10
6	8	9
7	8	9
8	7	8
9	7	8
10	7	8
11	7	8
Total	**84**	**100**

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4.2 TEXTILE DESIGN-I

(Common to Three year Diploma course in Textile Design)

L	T	P
4	2	-

RATIONAL :

This paper deals with generating self designs in the fabrics. Use of free hand sketching and their enlargement andfabric finishing activities.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:
1- Understand sketching and enlargement of motif.
2- Understand composition of design.
3- Understand development of strip and check pattern.
4- Understand development of dobby and Jacqiards design.
5- Understand development of all over design.

DETAILED CONTENTS :

1. Free hand sketching, enlargment and reduction of designs.Concept of design repeats
2. Construction of motif suitable for printing & weaving design.
3. Composition of Bi-symmetrical and Multi-symmetrical.
4. Preparation of motif and their arrangement.
5. Development of stripe and check pattern -

i. Simple - Regular and Irregular patern.
ii. Counter change pattern.
iii. Graduated pattern.
iv. Modified form.

6. Development of decorative geometrical designs, allover design and different from of design.
7. Development of design - suitable for dobby and Jacquards.

INSTRUCTIONAL STRATEGY

Student should be encouraged to participate in role play and other student centred activities in
class room and actively participate in listening exercises

MEANS OF ASSESSMENT

– Assignments and quiz/class tests, mid-semester and end-semester written tests

– Actual practical work, exercises and viva-voce
– Presentation and viva-voce

RECOMMENDED BOOKS

1. Fabric Structure and Design by N.Gokarveshan
2. Watson's textile design & colour by Z.J.Grosicki.
3. Woven fabric structure design and product planning by Dr. J. Hayavadana
4. Mastering weaves structure- Sharon Alderman-Inter weave Press

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	12	14
2	12	14
3	12	14
4	12	14
5	12	14
6	12	15
7	12	15
Total	**84**	**100**

4.3 FABRIC MANUFACTURING PROCESS-II

(Common to Three year Diploma course in Textile Design)

L	T	P
4	2	-

RATIONAL

From the title of the paper it is evident that the knowledge of manufacturing process is matter of imparitiveimportance to textile designer. So is the importance of thepaper.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:
1- Understand classification of looms & function of different barts.
2- Understand passage of warp on loom.
3- Understand various motions.
4- Understand drop box dobby and Jacquard.
5- Understand knitting and modern wearing machines.

DETAILED CONTENTS

1. Classification of various types of weaving machine.Study of handloom, power loom and elementry knowledge of automaticlooms.
2. Passage of warp on loom. Showing all its necessary parts.
3. Primary, Secondary and Auxillary motions in weaving process.
4. Brief study of drop box, dobby and jacquard.
5. Introduction to knitied fabrics and various types ofknitting machines (Warp knit and Weft knit machines only)
6. Introduction & Principles of Modern Weaving Machines(Shuttle less 100 ms) i.e Projectile, Airfet and Rapier 100ms.

INSTRUCTIONAL STRATEGY

Student should be encouraged to participate in role play and other student centred activities in
class room and actively participate in listening exercises

MEANS OF ASSESSMENT

- Assignments and quiz/class tests, mid-semester and end-semester written tests
- Actual practical work, exercises and viva-voce
- Presentation and viva-voce

RECOMMENDED BOOKS

1. Weaving mechanism I & II, by N.N. Banerjee
2. Fabric manufacturing I & II by NCUTE
3. Wearing by Talukdar

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SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	14	17
2	14	17
3	14	17
4	14	17
5	14	16
6	14	16
Total	**84**	**100**

*4.4 ENVIRONMENTAL STUDIES

(Common to all Three Year Diploma courses)

L	T	P
3	-	2

RATIONALE

A diploma holder must have knowledge of different types of pollution caused due to industries and constructional activities so that he may help in balancing the ecosystem and controlling pollution by various control measures. He should also be aware of environmental laws related to the control of pollution. He should know how to manage the waste. Energy conservation is the need of hour. He should know the concept of energy management and its conservation.

LEARNING OUTCOMES

After undergoing the subject, the student will be able to:

- Comprehend the importance of ecosystem and sustainable
- Demonstrate interdisciplinary nature of environmental issues
- Identify different types of environmental pollution and control measures.
- Take corrective measures for the abatement of pollution.
- Explain environmental legislation acts.
- Define energy management, energy conservation and energy efficiency
- Demonstrate positive attitude towards judicious use of energy and environmental protection
- Practice energy efficient techniques in day-to-day life and industrial processes.
- Adopt cleaner productive technologies
- Identify the role of non-conventional energy resources in environmental protection.
- Analyze the impact of human activities on the environment

DETAILED CONTENTS

1. Introduction

(04 Periods)

1.1 Basics of ecology, eco system- concept, and sustainable development, Resources renewable and non renewable.

2. Air Pollution

(04 Periods)

2.1 Source of air pollution. Effect of air pollution on human health, economy, plant, animals. Air pollution control methods.

3. Water Pollution

(08 Periods)

3.1 Impurities in water, Cause of water pollution, Source of water pollution. Effect of water pollution on human health, Concept of dissolved O2, BOD, COD. Prevention of water pollution-Water treatment processes, Sewage treatment. Water quality standard.

4. Soil Pollution
(06 Periods)

4.1 Sources of soil pollution

4.2 Types of Solid waste- House hold, Hospital, From Agriculture, Biomedical, Animal and human, excreta, sediments and E-waste

4.3 Effect of Solid waste

4.4 Disposal of Solid Waste- Solid Waste Management

5. Noise pollution
(06 Periods)

Source of noise pollution, Unit of noise, Effect of noise pollution, Acceptable noise level, Different method of minimize noise pollution.

6. Environmental Legislation
(08 Periods)

Introduction to Water (Prevention and Control of Pollution) Act 1974, Introduction to Air (Prevention and Control of Pollution) Act 1981 and Environmental Protection Act 1986, Role and Function of State Pollution Control Board and National Green Tribunal (NGT), Environmental Impact Assessment (EIA).

7. Impact of Energy Usage on Environment
(06 Periods)

Global Warming, Green House Effect, Depletion of Ozone Layer, Acid Rain.Eco-friendly Material, Recycling of Material, Concept of Green Buildings.

LIST OF PRACTICALS

1. Determination of pH of drinking water
2. Determination of TDS in drinking water
3. Determination of TSS in drinking water
4. Determination of hardness in drinking water
5. Determination of oil & grease in drinking water
6. Determination of alkalinity in drinking water
7. Determination of acidity in drinking water
8. Determination of organic/inorganic solid in drinking water
9. Determination of pH of soil
10. Determination of N&P (Nitrogen & Phosphorus) of soil
11. To measure the noise level in classroom and industry.
12. To segregate the various types of solid waste in a locality.
13. To study the waste management plan of different solid waste
14. To study the effect of melting of floating ice in water due to global warming

INSTRUCTIONAL STRATEGY

In addition to theoretical instructions, different activities pertaining to Environmental Studies like expert lectures, seminars, visits to green house,effluent treatment plant of any industry,rain water harvesting plant etc. may also be organized.

MEANS OF ASSESSMENT

- Assignments and quiz/class tests,
- Mid-term and end-term written tests

RECOMMENDED BOOKS

1. Environmental and Pollution Awareness by Sharma BR; SatyaPrakashan, New Delhi.
2. Environmental Protection Law and Policy in India by Thakur Kailash; Deep and Deep Publications, New Delhi.
3. Environmental Pollution by Dr. RK Khitoliya; S Chand Publishing, New Delhi
4. Environmental Science by Deswal and Deswal; DhanpatRai and Co. (P) Ltd. Delhi.
5. Engineering Chemistry by Jain and Jain; DhanpatRai and Co. (P) Ltd. Delhi.

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6. Environmental Studies by ErachBharucha; University Press (India) Private Ltd., Hyderabad.
7. Environmental Engineering and Management by Suresh K Dhamija; S K Katariaand Sons, New Delhi.
8. E-books/e-tools/relevant software to be used as recommended by AICTE/UBTE/NITTTR, Chandigarh.

Websites for Reference:

http://swayam.gov.in

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	04	10
2	04	10
3	08	20
4	06	14
5	06	14
6	08	20
7	06	12
Total	**42**	**100**

Approved and Corrected by BTE on Dated 16.06.2017

Corrected and Approved by Board of Technical Education, U.P., Lucknow in CDC Meeting held on 19.08.2023

PRACTICALS-
Semester-IV

4.5 TEXTILE PRINTING

(Common to Three year Diploma course in Textile Design)

L	T	P
-	-	10

RATIONAL :

Printing of fabrics for making it attractive is an art andthere is no end to development of technologies for the process. The paper is meant to give an insight of the meansand methods used in printing.

Printing of Cotton and rayon fabrics by different methods byBlock and Screen printing, Batik printing etc.

Testing of fabric on varous agencies like washing fastness,light fastness, rubbing fastness.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:
1- Understand preparation of cloth for printing process
2- Know different printing methods available
3-Know different chemicals and agents used for printing and composition of printing paste
4- Know various styles of printing
5- Know printing procedures for various fibres
6- Know printing defects and their remedies

DETAILED CONTENTS :

1. Printing of cotton fabric by block printing

2. Printing of cotton fabric by screen printing

3. Printing of cotton fabric by batik printing

4. Printing of cotton fabric by stencil printing

5. Printing of rayon fabric by block printing

INSTRUCTIONAL STRATEGY

Student should be encouraged to participate in role play and other student centred activities in class room and actively participate in listening exercises

MEANS OF ASSESSMENT

- Assignments and quiz/class tests, mid-semester and end-semester written tests
- Actual practical work, exercises and viva-voce
- Presentation and viva-voce

RECOMMENDED BOOKS

1. Textile printing by Leslie W.C. Miles
2. Pretreatment of textile materials for dyeing and printing by Dr.M.S.Parmar published by NITRA
3. Introduction to textile finishing by J.T. Marsh
4. Textile finishing by V.A. Shenai
5. Principles of textile printing by Asim Kumar Roy Choudhury

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	28	20
2	28	20
3	28	20
4	28	20
5	28	20
Total	**140**	**100**

Corrected and Approved by Board of Technical Education, U.P., Lucknow in CDC Meeting held on 19.08.2023

4.6 TEXTILE DESIGN-I

(Common to Three year Diploma course in Textile Design)

L	T	P
-	-	8

RATIONAL :

This paper deals with generating self designs in thefabrics. Use of free hand sketching and theirenlargement and fabric finishing activities.

Preparation of 12 drawing sheets on the basis oftheory syllabus to be ornamented by different coloursand system.

RATIONALE :

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:
1- Understand sketching and enlargement of motif.
2- Understand composition of design.
3- Understand development of strip and check pattern.
4- Understand development of dobby and Jacqiards design.
5- Understand development of all over design.

DETAILED CONTENTS :

1. Free hand sketching, enlargment and reduction of designs.Concept of design repeats
2. Construction of motif suitable for printing & weaving design.
3. Composition of Bi-symmetrical and Multi-symmetrical.
4. Preparation of motif and their arrangement.
5. Development of stripe and check pattern -

i. Simple - Regular and Irregular pattern.
ii. Counter change pattern.
iii. Graduated pattern.
iv. Modified form.

6. Development of decorative geometrical designs, allover design and different from of design.
7. Development of design - suitable for dobby and Jacquards.

INSTRUCTIONAL STRATEGY

Student should be encouraged to participate in role play and other student centred activities in class room and actively participate in listening exercises

MEANS OF ASSESSMENT

- Assignments and quiz/class tests, mid-semester and end-semester written tests
- Actual practical work, exercises and viva-voce
- Presentation and viva-voce

RECOMMENDED BOOKS

1. Fabric Structure and Design by N.Gokarveshan
2. Watson's textile design & colour by Z.J.Grosicki.
3. Woven fabric structure design and product planning by Dr. J. Hayavadana
4. Mastering weaves structure- Sharon Alderman-Inter weave Press

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	12	14
2	12	14
3	12	14
4	12	14
5	12	14
6	12	15
7	12	15
Total	**84**	**100**

V Semester

5.1 - TEXTILE TESTING-I

(Common To Textile Chemistry, Textile Technology)

L	T	P
4	2	-

RATIONALE:

As the name implies this paper aims to develop in the incumbent the capability of testing the products and its components for desired results. Without it a product can never be claimed for any standard.

LEARNING OUTCOMES

After completing this course the student will be able to:

1. Understand importance of textile testing, sampling and quality control
2. Understand and conduct various fiber dimensions used in textile testing
3. Understand and conduct various yarn dimensions used in textile testing
4. Understand and conduct various fabric dimensions used in textile testing
5. Understand and conduct tensile testing of textiles
6. Understand and conduct evenness testing of textiles

DETAILED CONTENTS

1. FIBER TESTING:

   Fiber Length (mean length, effective length and staple length), the effect of length, baer sorter technique of measuring the length. Other length measuring instruments (names and brief introduction).

   Fiber fineness and maturity of cotton, brief introduction of different measuring methods and their principles.

   Role and importance of humidity, concepts of humidity, relative humidity, moisture content and moisture regain and relation between the MC and MR.

2. YARN TESTING:

   Concept of count, its measurement by different methods. Concepts of S & Z twist, relation between tpi, twist multiplier and count. Measurement of tpi, name and brief introduction of various twist measuring machines.

Important definitions pertaining to tensile strength, principles of CRL and CRT, tensile testers, factors affecting the strength materials, brief study of tensile testing machines, concept of RKM and CSP.

3. EVENNESS / IRREGULARITIES:
Nature of irregularities – short term, medium term and long term variations, periodic and non periodic irregularities. Analysis of classimate and classimate faults.

4. Estimation of Blend composition (as per popularity).

INSTRUCTIONAL STRATEGY

Physical Demonstration of various textile testing instruments.
Visit may be conducted for students to different textile testing laboratories.
Practical's and file preparation

MEANS OF ASSESSMENT

- Assignments and quizzes
- Mid-term and End-term written tests
- Mini Model or chart preparation
- Actual lab and practical work
- Viva-voce

RECOMMENDED BOOKS

1- "Principles of Textile Testing" by J.E. Booth
2- "Physical Testing of Textiles '' by B.P. Saville

SUGGESTED DISTRIBUTION OF MARKS

Unit	Time Allotted (Periods)	Marks Allotted (%)
1	24	30
2	24	30
3	20	20
4	16	20
Total	**84**	**100**

5.2 TEXTILE DESIGN - II

(Common to Three year Diploma course in Textile Design)

L	T	P
4	2	-

RATIONAL :

This paper mostly deals with decorative designs, development & printing and their transfer to fabrics.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:

1- Understand different pattern by colour and weave effect.

2- Understand element and bases of design.

3- Understand development of design of graph paper and its arrangement.

4- Understand development of complex fabrics.

DETAILED CONTENTS

1. Development of pattern by colour and weave effect.
2. Elements and principles of preparing decorative designs for woven and printed fabrics for various uses. Basis of textile design like diamond ogee, curved line half drop, reverse etc. Ways of modifying colours in textiles.
3. Transfering of design of shirting sarees, brocades etc to the point paper. Ways of arrangement of figures or motifs.
4. Transfering of design on graphic (Point), Paper, edging and insertion of weaves in figured protion and on ground.
5. Brief idea of special and complex fabries e.g. Double cloth, Brocades, Tapesteries adn Damarks.
6. Brief idea of Turkish Towelling fabric and their ornamentation.
7. Types of design functional items designed for a specific purpose that may include examples from the following focus areas. Apparel, Furnishing textile arts aesthetic surface decoration.

INSTRUCTIONAL STRATEGY

Student should be encouraged to participate in role play and other student centred activities in class room and actively participate in listening exercises

MEANS OF ASSESSMENT

– Assignments and quiz/class tests, mid-semester and end-semester written tests

- Actual practical work, exercises and viva-voce
- Presentation and viva-voce

RECOMMENDED BOOKS

1. Fabric Structure and Design by N.Gokarveshan
2. Watson's textile design & colour by Z.J.Grosicki.
3. Woven fabric structure design and product planning by Dr. J. Hayavadana
4. Mastering weaves structure- Sharon Alderman-Inter weave Press.
5. Advance Textile Design & coulour by Watson's

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	12	15
2	12	15
3	12	14
4	12	14
5	12	14
6	12	14
7	12	14
Total	**84**	**100**

5.3 PROFESSIONAL STUDIES

(Common to Three year Diploma course in Textile Design)

L	T	P
4	2	-

RATIONAL :

This paper aims to give a brief idea of fundamentals related to managerial & entrepreneurial activities and responsibilities in an industry. Students choosing their carrier as industrial worker need it to understand the industrial environment.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:
1- Understand about Textile industry in India.
2- Understand nature and function of management.
3- Understand Principles of marketing management.
4- Understand liaisoning with clients and costing.
5- Understand design studio and entrepreneurship.

DETAILED CONTENTS

1. Understanding of designers environment. A brief idea about Textile Industry in India and its organisation. Problems faced by Designers, Sociological-psychological, Financial steps necessary to overcome them.
2. Nature of management, functions of management. The science and Art of management. (Brief ideas).
3. Principles of Marketing management. Nature and importance, Meaning of Marketing. Marketing Techniques and skills-Market Research Sales Promotion, Product Planning pricing, distribution factors governing adoption of such techniques.
4. Establish liaisoning with clients. Need for liaisoning with clients. Types of clients, how to deal with them. Social responsibilities of business (From Designers point of view). Need for human relations.
5. Costing :
   Elements of costs : Materials, labour expense, prime cost and overheads.
   Fixed and variable cost.
   Type of cost : predetermined, standard and marginal.
6. Requirements and organisation of a Design studio.

7. Entrepreneurship: Sources of finance. For setting up small scale units. Agencies to be contacted for setting up small scale units, preparation of a project report for setting up a design studio.

INSTRUCTIONAL STRATEGY

Student should be encouraged to participate in role play and other student centered activities in class room and actively participate in listening exercises

MEANS OF ASSESSMENT

- Assignments and quiz/class tests, mid-semester and end-semester written tests
- Actual practical work, exercises and viva-voce
- Presentation and viva-voce

RECOMMENDED BOOKS

1. The art of Management by Shiv shivakumar
2. Managers who make a difference by TV Rao.
3. Business Sutra: A very Indian approach to management by Devdutt Pattanaik.
4. Marketing management by Kevin dane Keller.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	12	16
2	10	10
3	14	16
4	12	15
5	14	16
6	10	12
7	12	15
Total	**84**	**100**

Corrected and Approved by Board of Technical Education, U.P., Lucknow in CDC Meeting held on 19.08.2023

*5.4 Universal Human Values

(Common to all Three Year Diploma courses)

L	T	P
2	-	1

Course Objectives

This introductory course input is intended

1. To help the students appreciate the essential complementarily between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity, which are the core aspirations of all human beings
2. To facilitate the development of a Holistic perspective among students towards life and profession as well as towards happiness and prosperity based on a correct understanding of the Human reality and the rest of Existence. Such a holistic perspective forms the basis of Universal Human Values and movement towards value-based living in a natural way
3. To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually fulfilling human behavior and mutually enriching interaction with Nature

Thus, this course is intended to provide a much needed orientational input in value education to the young enquiring minds.

Course Methodology

1. The methodology of this course is explorational and thus universally adaptable. It involves a systematic and rational study of the human being vis-à-vis the rest of existence.
2. It is free from any dogma or value prescriptions.
3. It is a process of self-investigation and self-exploration, and not of giving sermons. Whatever is found as truth or reality is stated as a proposal and the students are facilitated to verify it in their own right, based on their Natural Acceptance and subsequent Experiential Validation.
4. This process of self-exploration takes the form of a dialogue between the teacher and the students to begin with, and then to continue within the student leading to continuous self-evolution.
5. This self-exploration also enables them to critically evaluate their pre-conditionings and present beliefs.

The syllabus for the lectures is given below:

- After every two lectures of one hour each, there is one hour practice session.
- The assessment for this subject is as follows:
- Sessions Marks (Internal): 20
- Practical Marks (External): 30
- Total Marks: 50

UNIT 1: Course Introduction - Need, Basic Guidelines, Content and Process for Value Education

1. Understanding the need, basic guidelines, content and process for Value Education
2. Self-Exploration–what is it? - its content and process; ‘Natural Acceptance’ and

Experiential Validation- as the mechanism for self-exploration

3. Continuous Happiness and Prosperity- A look at basic Human Aspirations
4. Right understanding, Relationship and Physical Facilities- the basic requirements for fulfillment of aspirations of every human being with their correct priority
5. Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario
6. Method to fulfill the above human aspirations: understanding and living in harmony at various levels

UNIT 2: Understanding Harmony in the Human Being - Harmony in Myself!

1. Understanding human being as a co-existence of the sentient 'I' and the material the Body'
2. Understanding the needs of Self ('I') and 'Body' - Sukh and Suvidha
3. Understanding the Body as an instrument of 'I' (I being the doer, seer and enjoyer)
4. Understanding the characteristics and activities of 'I' and harmony in 'I'
5. Understanding the harmony of I with the Body: Sanyam and Swasthya; correct appraisal of Physical needs, meaning of Prosperity in detail
6. Programs to ensure Sanyam and Swasthya

-Practice Exercises and Case Studies will be taken up in Practice Sessions.

UNIT 3: Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship

1. Understanding Harmony in the family – the basic unit of human interaction
2. Understanding values in human-human relationship; meaning of Nyaya and program for its fulfillment to ensure Ubhay-tripti;
    a. Trust (Vishwas) and Respect (Samman) as the foundational values of relationship
3. Understanding the meaning of Vishwas; Difference between intention and competence
4. Understanding the meaning of Samman, Difference between respect and differentiation; the other salient values in relationship
5. Understanding the harmony in the society (society being an extension of family): Samadhan, Samridhi, Abhay, Sah-astitva as comprehensive Human Goals
6. Visualizing a universal harmonious order in society- Undivided Society (AkhandSamaj), Universal Order (SarvabhaumVyawastha)- from family to world family!

-Practice Exercises and Case Studies will be taken up in Practice Sessions.

UNIT 4: Understanding Harmony in the Nature and Existence - Whole existence as Co-existence

1. Understanding the harmony in the Nature
2. Interconnectedness and mutual fulfillment among the four orders of nature-recyclability and self-regulation in nature
3. Understanding Existence as Co-existence (Sah-astitva) of mutually interacting units in all-pervasive space

4. Holistic perception of harmony at all levels of existence
   -Practice Exercises and Case Studies will be taken up in Practice Sessions.

UNIT 5: Implications of the above Holistic Understanding of Harmony on Professional Ethics

1. Natural acceptance of human values
2. Definitiveness of Ethical Human Conduct
3. Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order
4. Competence in professional ethics:
   a) Ability to utilize the professional competence for augmenting universal human order
   b) Ability to identify the scope and characteristics of people-friendly and eco-friendly production systems,
   c) Ability to identify and develop appropriate technologies and management patterns for above production systems.
5. Case studies of typical holistic technologies, management models and production systems
6. Strategy for transition from the present state to Universal Human Order:

a) At the level of individual: as socially and ecologically responsible engineers, technologists and managers
b) At the level of society: as mutually enriching institutions and organizations

7. To inculcate Human Values among Students: The Role of self ,Parents and Teachers
   -Practice Exercises and Case Studies will be taken up in Practice Sessions.

Practical Session also Includes Different Yogic Exercises and Meditation Session

INSTRUCTONAL STRATEGY

The content of this course is to be taught on conceptual basis with plenty of real world examples.

MEANS OF ASSESSMENT

- Assignments and quiz/class tests,
- Mid-term and end-term written tests
- Practical assessment

Reference Material

The primary resource material for teaching this course consists of

a. The text book (Latest Edition)

R.R Gaur, R Asthana, G P Bagaria, A foundation course in Human Values and professional Ethics, Excel books, New Delhi.

b. The teacher's manual (Latest Edition)

R.R Gaur, R Asthana, G P Bagaria, A foundation course in Human Values and professional Ethics – Teachers Manual, Excel books, New Delhi.

In addition, the following reference books may be found useful for supplementary reading in connection with different parts of the course:

1. B L Bajpai, 2004, Indian Ethos and Modern Management, New Royal Book Co., Lucknow. Reprinted 2008.
2. PL Dhar, RR Gaur, 1990, Science and Humanism, Commonwealth Purblishers.
3. Sussan George, 1976, How the Other Half Dies, Penguin Press. Reprinted 1986, 1991
4. Ivan Illich, 1974, Energy & Equity, The Trinity Press, Worcester, and HarperCollins, USA
5. Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, William W. Behrens III, 1972, limits to Growth, Club of Rome's Report, Universe Books.
6. SubhasPalekar, 2000, How to practice Natural Farming, Pracheen(Vaidik) KrishiTantraShodh, Amravati.
7. A Nagraj, 1998, JeevanVidyaekParichay, Divya Path Sansthan, Amarkantak.
8. E.F. Schumacher, 1973, Small is Beautiful: a study of economics as if people mattered, Blond & Briggs, Britain.
9. A.N. Tripathy, 2003, Human Values, New Age International Publishers.

Relevant websites, movies and documentaries

1. Value Education websites, http://uhv.ac.in, http://www.aktu.ac.in
2. Story of Stuff, http://www.storyofstuff.com
3. Al Gore, An Inconvenient Truth, Paramount Classics, USA
4. Charlie Chaplin, Modern Times, United Artists, USA
5. IIT Delhi, Modern Technology – the Untold Story
6. Case study Hevade Bazar Movie
7. RC Shekhar , Ethical Contradiction ,Trident New Delhi
8. Gandhi A., Right Here Right Now, Cyclewala Production

SUGGESTED DISTRIBUTION OF MARKS

Unit	Time Allotted (Periods)	Marks Allotted (%)
1	08	20
2	08	20
3	08	20
4	08	20
5	10	20
Total	**42**	**100**

^ 5.5 ADVANCE TEXTILE PRINTING

(Only for Textile Design Printing)

L	T	P
4	2	-

RATIONALE:

Printing of fabrics for making it attractive is an art and there is no end to development of technologies for the process. The paper is meat to give advance knowledge, means and methods used in printing.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:

1- Understand the various styles of printing.
2- Understand natural dyes.
3- Understand pigment printing.
4- Understand various types of printing.
5- Understand polychromatic and transfer printing.

DETAILED CONTENTS

1. Discharge and resist style of printing on cotton using vat, reactive sulubilised vat, rapid fast, Rapidogen, Rapidazal.
2. Sources of natural dye, different types of mordants, mordanting techniques, Application of Natural dyes in printing.
3. Pigment printing using pigment separately and along with other colours.
4. Various types of printing such as raised, Flock, capsule and Foam printing.
5. Printing of synthetic and their blends-(Polyeste, Nylon, Acrylic and Polyester Cotton).
6. Roller Printing, Various parts of M/c, their function, Printing technique, Common faults and their rectifications.
7. Process for engraving - tracing of design, transfer of design on roller by engraving.
8. Flatbed and rotary screen printing M/c. Preparation of rotary screens, Different squeezee system and their comparison with roller printing.
9. Preparation of design on graph paper- Screen making transfer of design from paper to screen, Chemicals used in developing.of desing on screens.
10. Introduction to polychromatic printing and transfer printing.
11. Introduction to printing of yarn.
12. Latest development in Textile Printing.

Corrected and Approved by Board of Technical Education, U.P., Lucknow in CDC Meeting held on 19.08.2023

INSTRUCTIONAL STRATEGY

Student should be encouraged to participate in role play and other student centred activities in class room and actively participate in listening exercises

MEANS OF ASSESSMENT

- Assignments and quiz/class tests, mid-semester and end-semester written tests
- Actual practical work, exercises and viva-voce
- Presentation and viva-voce

RECOMMENDED BOOKS

1. Textile printing by Leslie W.C. Miles
2. Pretreatment of textile materials for dyeing and printing by Dr.M.S.Parmar published by NITRA
3. Introduction to textile finishing by J.T. Marsh
4. Textile finishing by V.A. Shenai
5. Principles of textile printing by Asim Kumar Roy Choudhury
6. Textile Printing by RS Prayceg.
7. Technology of Printing (Volume-IV) by V.A. Shenai, Pub-Sevak Publication
8. Textile Printing by LWC Miles (Revised Second Edition)

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	7	10
2	7	10
3	7	8
4	7	10
5	7	10
6	7	10
7	7	8
8	7	7
9	7	10
10	7	7
11	7	5
12	7	5
Total	**84**	**100**

Corrected and Approved by Board of Technical Education, U.P., Lucknow in CDC Meeting held on 19.08.2023

5.6 TEXTILE DESIGN - II

(Common to Three year Diploma course in Textile Design)

L	T	P
-	-	8

RATIONAL:

This paper primarrily focuses on decorative designs, development & printing and their transfer to fabrics.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:

1- Understand different pattern by colour and weave effect.

2- Understand element and bases of design.

3- Understand development of design of graph paper and its arrangement.

4- Understand development of complex fabrics.

DETAILED CONTENTS

1. Development of pattern by colour and weave effect.
2. Elements and principles of preparing decorative designs for woven and printed fabrics for various uses. Basis of textile design like diamond ogee, curved line half drop, reverse etc. Ways of modifying colours in textiles.
3. Transfering of design of shirting sarees, brocades etc to the point paper. Ways of arrangement of figures or motifs.
4. Transfering of design on graphic (Point), Paper, edging and insertion of weaves in figured protion and on ground.
5. Brief idea of special and complex fabries e.g. Double cloth, Brocades, Tapesteries adn Damarks.
6. Brief idea of Turkish Towelling fabric and their ornamentation.
7. Types of design functional items designed for a specific purpose that may include examples from the following focus areas. Apparel, Furnishing textile arts aesthetic surface decoration.

INSTRUCTIONAL STRATEGY

Student should be encouraged to participate in role play and other student centred activities in class room and actively participate in listening exercises

Corrected and Approved by Board of Technical Education, U.P., Lucknow in CDC Meeting held on 19.08.2023

MEANS OF ASSESSMENT

- Assignments and quiz/class tests, mid-semester and end-semester written tests
- Actual practical work, exercises and viva-voce
- Presentation and viva-voce

RECOMMENDED BOOKS

1. Fabric Structure and Design by N.Gokarveshan
2. Watson's textile design & colour by Z.J.Grosicki.
3. Woven fabric structure design and product planning by Dr. J. Hayavadana
4. Mastering weaves structure- Sharon Alderman-Inter weave Press.
5. Advance Textile Design & coulour by Watson's

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	12	15
2	12	15
3	12	14
4	12	14
5	12	14
6	12	14
7	12	14
Total	**84**	**100**

Corrected and Approved by Board of Technical Education, U.P., Lucknow in CDC Meeting held on 19.08.2023

5.7 TEXTILE TESTING-I

(Common to all Three Year Diploma courses)

L	T	P
-	-	10

RATIONALE:

As the name implies this paper aims to develop in the incumbent the capability of testing the products and its components for desired results. Without it a product can never be claimed for any standard.

LEARNING OUTCOMES

After completing this course the student will be able to:

1. Understand importance of textile testing, sampling and quality control
2. Understand and conduct various fiber dimensions used in textile testing
3. Understand and conduct various yarn dimensions used in textile testing
4. Understand and conduct various fabric dimensions used in textile testing
5. Understand and conduct tensile testing of textiles
6. Understand and conduct evenness testing of textiles

LIST OF EXPERIMENT

1. To find the count of yarn
   (i) by physical balance
   (ii) by yarn quadrants balance.
   (iii)by Bessley yarn balance.

2. To calculate yearn count by wrap reel.

3. Determine the twist of yarn per inch/per meter in double yarn and its individual components by continuous twist tester and twist and untwist tester.

4. Find out the hank of sliver and roving with the aid of wrap block machine.

5. Find the staple length of fiber by Bare Sorter.

6. Measure fiber fineness by flowing air through a sample of fiber by micronaire.

7. Find out lea strength of cotton yarn by lea strength tester (Power driven) and CSP.

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8. Find the breaking strength of cotton yarn by Ballistic strength testing machine.

9. To find the breaking strength and elongation of single thread of cotton by single thread testing machine (Hand or power driven).

INSTRUCTIONAL STRATEGY

Physical Demonstration of various textile testing instruments.
Visit may be conducted for students to different textile testing laboratories.
Practical's and file preparation

MEANS OF ASSESSMENT

- Assignments and quizzes
- Mid-term and End-term written tests
- Mini Model or chart preparation
- Actual lab and practical work
- Viva-voce

RECOMMENDED BOOKS

3- "Principles of Textile Testing" by J.E. Booth
4- "Physical Testing of Textiles '' by B.P. Saville

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	16	10
2	14	10
3	16	10
4	14	10
5	16	12
6	16	12
7	16	12
8	16	12
9	16	12
Total	**140**	**100**

VIth Semester

*6.1 ENERGY CONSERVATION
(Common with Other Engineering Diploma Courses)

L	T	P
3	-	2

RATIONALE

The requirement of energy has increased manifolds in last two decades due to rapid urbanization and growth in industrial/service sector. It has become challenging task to meet ever increasing energy demands with limited conventional fuels and natural resources. Due to fast depletion of fossil fuels and a tremendous gap between supply and demand of energy, it is essential to adopt energy conservation techniques in almost every field like industries, commercial and residential sectors etc. Energy conservation has attained priority as it is regarded as additional energy resource. Energy saved is energy produced. This course covers the concepts of energy management and its conservation. It gives the insight to energy conservation opportunities in general industry and details out energy audit methodology and energy audit instruments.

LEARNING OUTCOMES

After undergoing this subject, the students will be able to:

- define principles and objectives of energy management and energy audit.
- understand Energy Conservation Act 2001 and its features.
- understand various forms & elements of energy.
- identify electrical and thermal utilities. Understand their basic principle of operation and assess performance of various equipments.
- identify areas of energy conservation and adopt conservation methods in various systems.
- evaluate the techno economic feasibility of the energy conservation technique adopted.

DETAILED CONTENTS

1. Basics of Energy
   - 1.1 Classification of energy- primary and secondary energy, commercial and non-commercial energy, non-renewable and renewable energy with special reference to solar energy, Capacity factor of solar and wind power generators.
   - 1.2 Global fuel reserve

1.3 Energy scenario in India and state of U.P. Sector-wise energy consumption (domestic, industrial, agricultural and other sectors)

1.4 Impact of energy usage on climate

2. Energy Conservation and EC Act 2001

2.1 Introduction to energy management, energy conservation, energy efficiency and its need

2.2 Salient features of Energy Conservation Act 2001 & The Energy Conservation (Amendment) Act, 2010 and its importance. Prominent organizations at centre and state level responsible for its implementation.

2.3 Standards and Labeling: Concept of star rating and its importance, Types of product available for star rating

3. Electrical Supply System and Motors

3.1 Types of electrical supply system

3.2 Single line diagram

3.3 Losses in electrical power distribution system

3.4 Understanding Electricity Bill: Transformers Tariff structure, Components of power (kW, kVA and kVAR) and power factor, improvement of power factor, Concept of sanctioned load, maximum demand, contract demand and monthly minimum charges (MMC)

3.5 Transformers: Introduction, Losses in transformer, transformer Loading, Tips for energy savings in transformers

3.6 Electric Motors

Types of motors, Losses in induction motors Features and characteristics of energy efficient motors, Estimation of motor loading, Variation in efficiency and power factor with loading, Tips for energy savings in motors

4. Energy Efficiency in Electrical Utilities

4.1 Pumps: Introduction to pump and its applications, Efficient pumping system operation, Energy efficiency in agriculture pumps, Tips for energy saving in pumps

4.2 Compressed Air System: Types of air compressor and its applications, Leakage test, Energy saving opportunities in compressors.

4.3 Energy Conservation in HVAC and Refrigeration System: Introduction, Concept of Energy Efficiency Ratio (EER), Energy saving opportunities in Heating, Ventilation and Air Conditioning (HVAC) and Refrigeration Systems.

5. Lighting and DG Systems

5.1 Lighting Systems: Basic definitions- Lux, lumen and efficacy, Types of different lamps and their features, Energy efficient practices in lighting

5.2 DG Systems: Introduction, Energy efficiency opportunities in DG systems, Loading estimation

6. Energy Efficiency in Thermal Utilities

6.1 Thermal Basics: Thermal energy, Energy content in fuels, Energy Units and its conversions in terms of Metric Tonne of Oil Equivalent (MTOE)

6.2 Energy Conservation in boilers and furnaces : Introduction and types of boilers, Energy performance assessment of boilers, Concept of stoichiometric air and excess air for combustion, Energy conservation in boilers and furnaces, Do's and Don'ts for efficient use of boilers and furnaces

6.3 Cooling Towers: Basic concept of cooling towers, Tips for energy savings in cooling towers

6.4 Efficient Steam Utilization

7. Energy Conservation Building Code (ECBC)

7.1 ECBC and its salient features

7.2 Tips for energy savings in buildings: New Buildings, Existing Buildings

8. Waste Heat Recovery and Co-Generation

8.1 Concept, classification and benefits of waste heat recovery

8.2 Concept and types of co-generation system

9. General Energy Saving Tips

Energy saving tips in:

9.1 Lighting
9.2 Room Air Conditioner
9.3 Refrigerator
9.4 Water Heater
9.5 Computer
9.6 Fan, Heater, Blower and Washing Machine
9.7 Colour Television
9.8 Water Pump
9.9 Cooking
9.10 Transport

10. Energy Audit

    10.1 Types and methodology
    10.2 Energy audit instruments
    10.3 Energy auditing reporting format

PRACTICAL EXERCISES

1. To conduct load survey and power consumption calculations of small building.
1. To check efficacy of different lamps by measuring power consumption and lumens using lux meter.
2. To measure energy efficiency ratio (EER) of an air conditioner.
3. To measure effect of valve throttling and variable frequency drive (VFD) on energy consumption by centrifugal pump.
4. To measure and calculate energy saving by arresting air leakages in compressor.
5. To measure the effect of blower speed on energy consumed by it.

STUDENT ACTIVITIES ON ENERGY CONSERVATION/ENERGY EFFICIENCY

- Presentations of Case Studies
- Debate competitions
- Poster competitions
- Industrial visits
- Visual Aids

INSTRUCTIONAL STRATEGY

Teachers are expected to lay considerable stress on understanding the basic concepts in energy conservation, principles and their applications. For this purpose, teachers are expected to give simple problems in the class room so as to develop necessary knowledge for comprehending the basic concepts and principles. As far as possible, the teaching of the subject must be supplemented by demonstrations and practical work in the laboratory. Visits to industries must be carried out. Expert from industry must be invited to deliver talks on energy conservation to students and faculty.

RECOMMENDED BOOKS

1. Guide book on General Aspects of Energy Management and Energy Audit by Bureau of Energy Efficiency, Government of India. Edition 2015
2. Guide book on Energy Efficiency in Electrical Utilities, by Bureau of Energy Efficiency, Government of India. Edition 2015

Corrected and Approved by Board of Technical Education, U.P., Lucknow in CDC Meeting held on 19.08.2023

3. Guide book on Energy Efficiency in Thermal Utilities, by Bureau of Energy Efficiency, Government of India. Edition 2015
4. Handbook on Energy Audit & Environmental Management by Y P Abbi&Shashank Jain published by TERI. Latest Edition

Important Links:

(i) Bureau of Energy Efficiency (BEE), Ministry of Power, Government of India. www.beeindia.gov.in.
(ii) Ministry of New and Renewable Energy (MNRE), Government of India. www.mnre.gov.in.
(iii) Uttar Pradesh New and Renewable Energy Agency (UPNEDA), Government of Uttar Pradesh. www.upneda.org.in.
(iv) **Central Pollution Control Board (CPCB),** Ministry of Environment, Forest and Climate Change, Government of India. www.cpcb.nic.in.
(v) Energy Efficiency Sevices Limited (EESL). www.eeslindia.org.
(vi) Electrical India, Magazine on power and electrical products industry. www.electricalindia.in.

6.2 GARMENT & FASHION STUDIES

(Common to Three year Diploma course in Textile Design)

L	T	P
4	2	-

RATIONAL :

This paper aims to give a brief idea of fundamentals related to managerial & entrepreneurial activities and responsibilities in an industry. Students choosing their carrier as industrial worker need it to understand the industrial environment.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:
1- Basic Knowledge of Garment Construction.
2- Know about Patterning and Drafting
3- Introduction to Fashion.
4- Basic concept of latest Fashion Trends
5- Understanding the Environment of Fashion Professionals

DETAILED CONTENTS

1. CLASSIFICATION OF GARMENTS AND MEASUREMENTS : Garment classification for men and women, Fabric selection for various types of garments. Important body measurements.

2. PATTERNING AND GRADING : Patterning, importance of paper patterns, types of paper patterns, Principles of pattern drafting, brief introduction to grading. pattern alternation.

3. SPREADING, CUTTING AND SORTING: Objective and Equipment for spreading, cutting and sorting.

4. SEWING TECHNOLOGY and FINISHING: Introduction to sewing, seam and stitch classification, Method of sewing. Finishing of garments, Pressing of garments.

5. INTRODUCTION TO FASHION AND ITS TERMINOLOGY : Introduction to Fashion, Fashion design and fashion technology. Brief introduction, fashion terminology. History of Fashion - Fashion in India - Geographical and environmental aspects. Fashion Forecasting.

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6. To know about Fashion designers and technologies of tomorrow. Understanding the role of fashion professionals like designer, stylist, merchandiser and co-ordinator.

INSTRUCTIONAL STRATEGY

Student should be encouraged to participate in role play and other student centred activities in class room and actively participate in listening exercises

MEANS OF ASSESSMENT

- Assignments and quiz/class tests, mid-semester and end-semester written tests
- Actual practical work, exercises and viva-voce
- Presentation and viva-voce

RECOMMENDED BOOKS

1. History of Fashion by Manmeet Sodhia
2. Garment of Fashion and Apparel Design by GJ Sumathi
3. Introduction to Fashion Technology by Pooja Khurana & Monika Sethi
4. Tailoring & Cutting & Fashion Design by GL Tamta

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	14	16
2	14	16
3	12	16
4	16	20
5	14	16
6	14	16
Total	**84**	**100**

6.3 TEXTILE TESTING-II

(Common to Three year Diploma course in Textile Design)

L	T	P
4	2	-

RATIONALE:

As the name implies this paper aims to develop the capability of testing the products and its components for desired results. Without testing, a product can never be claimed for any standard.

LEARNING OUTCOMES

After completing this course the student will be able to:

1. Understand importance of textile testing, sampling and quality control
2. Understand and conduct various fiber dimensions used in textile testing
3. Understand and conduct various fabric dimensions used in textile testing
4. Understand and conduct tensile testing of textiles
5. Learn the basic Textile chemical testing

1. Define Quality, Quality Control and Quality Assurance, difference between QC and QA. Introduction to Textile testing, properties of fibers, yarns and fabrics and their relevance in assessing the performance of textile during and after their manufacture, Brief introduction of ISO.

2. FABRIC TESTING: (Dimension, Mechanical) -
   Define various test parameters of fabric, their importance and role in fabric and end product properties.

   Measurement of GSM, thickness, crimp. Fabric strength testing machines, such as cut strip, grab strip and revealed strip methods.

   Air permeability and its measurement, crease recovery of fabrics and its measurement. Water proof and Water repellency tests. Abrasion resistance and its testing by martindale abrasion tester.

   Concept of drape and its measurement, flexural rigidity & modules

   Dimensional stability, bowing, skewness, residual shrinkage.

3. FABRIC TESTING (Chemical & Finishing)-
   Colour fastness to Light.

Colour fastness to washing, Crocking, Perspiration, Pool, colour skinning, water retention etc.

INSTRUCTIONAL STRATEGY

Physical Demonstration of various textile testing instruments.
Visit may be conducted for students to different textile testing laboratories.
Practical's and file preparation

MEANS OF ASSESSMENT

- Assignments and quizzes
- Mid-term and End-term written tests
- Mini Model or chart preparation
- Actual lab and practical work
- Viva-voce

RECOMMENDED BOOKS

1- "Principles of Textile Testing" by J.E. Booth
2- "Physical Testing of Textiles '' by B.P. Saville

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	30	35
2	30	35
3	24	30
Total	**84**	**100**

TEXTILE QUALITY ASSURANCE
LIST OF EXPERIMENT

1. Examine the bursting strength of a fabric by bursting strength tester.
2. Find out the relative abrasion properties of fabrics by Martindale abrasion tester.
3. Find the breaking strength of different textile fabrics by means of cloth strength tester (power driven).
4. Measure crimp by shirley crimp meter.
5. Find out air permeability of fabric by air permeability tester.
6. Measure crease recovery of fabric by crease recovery tester.

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6.4 FABRIC STRUCTURE-II

(Common to Three year Diploma course in Textile Design)

L	T	P
4	2	-

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RATIONALE:

The paper deals with more complicated structures of todays fabrics. This knowledge is essential for modern textile technologist

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:
1- Understand the use of various fabrics in furnishing.
2- Understand the use of various fabrics in industries.
3- Equalize the knowledge of dress material fabrics

DETAILED CONTENTS

1. WELTS AND PIQUES:

   Varieties and characteristics of piques and welts, methods of embellishing pique fabrics, their structure, plain pique, backed pique, fast backed welts and waved pique.

2. BED FORD CORDS:

   Plain faced bed ford, wadded bed ford cord, bed ford cord arranged with alternate picks and cords containing odd number of ends. twill-faced bed ford cord.

3. BACKED FABRICS (WARP AND WEFT):

   Backed fabrics,wadded warp and weft backed fabrics, their beaming and drafting procedure.

4. 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.

5. DOUBLE CLOTH:

Construction of double and multiple cloths on design paper, their beaming, drafting and pegging. Types of double structures viz.

(i) Tubular Fabrics.

(ii) Double-faced Fabrics.

(iii) Fabrics opening to double the width.

(iv) Double equal plain fabrics.

(v) Centre stitched double cloth.

6. TURKISH TOWELLING:

Principles of formation of pile, construction of three, four, five and six pick terry fabrics their methods of drafting and denting. Terry ornamentation.

INSTRUCTIONAL STRATEGY

Student should be encouraged to participate in role play and other student centered activities in class room and actively participate in listening exercises

MEANS OF ASSESSMENT

- Assignments and quiz/class tests, mid-semester and end-semester written tests
- Actual practical work, exercises and viva-voce
- Presentation and viva-voce

RECOMMENDED BOOKS

1. Advance Textile Design & Colour by Watson's
2. Fabric Structure and Design by N.Gokarveshan
3. Watson's textile design & colour by Z.J.Grosicki.
4. Woven fabric structure design and product planning by Dr. J. Hayavadana
5. Mastering weaves structure- Sharon Alderman-Inter weave Press

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	6	8
2	8	10
3	6	8
4	16	18
5	16	20
6	16	18
7	16	18
Total	**84**	**100**

6.5 TEXTILE TESTING-II

(Common to all Three Year Diploma courses)

L	T	P
-	-	8

RATIONALE:

As the name implies this paper aims to develop the capability of testing the products and its components for desired results. Without testing, a product can never be claimed for any standard.

LEARNING OUTCOMES

After completing this course the student will be able to:

1. Understand importance of textile testing, sampling and quality control
2. Understand and conduct various fiber dimensions used in textile testing
3. Understand and conduct various fabric dimensions used in textile testing
4. Understand and conduct tensile testing of textiles
5. Learn the basic Textile chemical testing

LIST OF EXPERIMENT

1. Examine the bursting strength of a fabric by bursting strength tester.

2. Find out the relative abrasion properties of fabrics by Martindale abrasion tester.

3. Find the breaking strength of different textile fabrics by means of cloth strength tester (power driven).

4. Measure crimp by shirley crimp meter.

5. Find out air permeability of fabric by air permeability tester.

6. Measure crease recovery of fabric by crease recovery tester.

7. Test evenness of the yarn by evenness tester,

8. Fabric absorbency test by included plan method.

9. Evaluation of
   a) Wash fastness

b) Rubbing fastness

INSTRUCTIONAL STRATEGY

Physical Demonstration of various textile testing instruments.
Visit may be conducted for students to different textile testing laboratories.
Practical's and file preparation

MEANS OF ASSESSMENT

- Assignments and quizzes
- Mid-term and End-term written tests
- Mini Model or chart preparation
- Actual lab and practical work
- Viva-voce

RECOMMENDED BOOKS

1- "Principles of Textile Testing" by J.E. Booth
2- "Physical Testing of Textiles '' by B.P. Saville

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	12	10
2	12	10
3	12	10
4	12	10
5	14	12
6	12	12
7	12	12
8	14	12
9	12	12
Total	**112**	**100**

6.6 COMPUTER AIDED TEXTILE DESIGN-II (CATD)

(Common to Three year Diploma course in Textile Design)

L	T	P
-	-	8

RATIONALE:

In today's world Computer Aided Textile Designing (CTAD) becomes versatile for all the designing and weaving industry. Designing with the help of computer is becoming more relevant with time. The main objective of teaching this subject is to develop skill of designing using different software of textile design to the students.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:
1- Editing, draping & simulation for different fabric by software.
2-Develop patterns
3-Scan image and edit scanned image.
4-Develop textile motifs

DETAILED CONTENTS

1. DOBBY SOFTWARE :
   Learn Step by step command

2. JACQUARD SOFTWARE :
   Learn Step by step commands

3. SIMULATION SOFTWARE :
   Learn Step by step commands

4. TEXTILE MAPPING SOFTWARE :
   Learn Step by step commands

ONLY FOR THREE YEAR DIPLOMA COURSE IN TEXTILE DESIGN (PRINTING)

PRINTING SOFTWARE :

Learn Step by step commands to produce a printed design

TEXTILE MAPPING SOFTWARE :

Learn Step by step commands

Experiment list for textile design and textile design (printing)

1. Pattern Generation
2 Sketch Formation
3. Reduction and Cleanup Image
4. Colour
5. Design Modification (Repeat)
6. Create Graph and Binding weaves (Only For Textile Design)
7. Create Colour Separation (Only For Textile Design (Printing))
8. Specification sheet
9. Simulation
10. Texture Mapping

INSTRUCTIONAL STRATEGY

Student should be encouraged to participate in role play and other student centered activities in class room and actively participate in listening exercises

MEANS OF ASSESSMENT

- Assignments and quiz/class tests, mid-semester and end-semester written tests
- Actual practical work, exercises and viva-voce
- Presentation and viva-voce

RECOMMENDED BOOKS

1. Manual of Autotex, Texdesigner, Arhane weaves and Net graphics Software.

RECOMMENDED SOFTWARES

1. Corel Draw Software
2. Inkscape Software
3. Photoshop
4. GIMS

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	28	25
2	28	25
3	28	25
4	28	25
Total	**112**	**100**

6.7 PROJECT WORK

(Common to Three year Diploma course in Textile Design. Spl.In Printing)

L	T	P
-	-	6

RATIONAL :

The purpose of introducing the projects are to enable student to apply the knowledge, skills and attitudes acquired during the entire course of the solution real life problems.

1. PURPOSE AND ASSESSMENT :

Each student will be assigned a specific problem solving right from conception of design up to the execution of design. The assessment of project work shall be based on.

1. Definition of the problem.
2. Explain the approach towards solution of the problem .
3. Developing and sketches (Developing alternatives).
4. Colour schemes.
5. Final Design.
6. Fabric selection.
7. Quality of print.
8. Procedure adopted by the student in arriving at final solution.
9. Originality of the design concepts.
10. Initiative and participation of the student.

A viva voce examination shall be conducted at the end of the project 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.

2. **SUGGESTED PROBLEMS FOR PROJECT WORK :**

The theme will be discussed in the theory period. For each submission the students are required to submit :
(a) 20 Ideas (croquis) (b) Final design with repeat.
(c) 5 colourways (d) Design printed on fabric.

All work will have to be executed in the theory class, studio and laboratory under the supervision of a lecturer, Studio Assistant or Laboratory Assistant.

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No design without the approval of the teacher concerned will be accepted for the final submission.

1. Theme : Floral pattern in stylised and naturalistic form.
   For : Saree for summer wear.
   Fabric : Shaffon
   Method : Hand painted
   Dye : Acrymen
   Placement : Of your choice
   Colour scheme : No limit
   Practical Submission : On 5.5 meter organdie fabric.

   Special feature : Placement and colour scheme, as in this method you can have light and dark shades, the play of the fine artwork with brush. Each report to have the characteristic of the flow of the hand as you are not allowed to trace the design of the fabric.Each report to be in origional form.

2. Theme : Indian mythology depicting a Mahabharat or Ramayana scene. The design you could use the salient feature of mytholoy e.g. the chariot wheels. The armour used for warriors or the decorative form of architecture arches etc.
   For : bed cover / floor covering.
   Method : Screen printing lacquer method.
   Fabric : Of your choice.
   Placement : Of your choice.
   Dyes : Acramyn.
   Repeat : Based on the theme.
   Colour scheme : Minimum five colours.
   Practical Submission: Double Bed Covers/Floor covering.
   Special feature : The choice of the fabric, and to create a harmony in the theme for all the objects as they will placed in one room the ingenuity lies in your design to use minimum screens from small layout to large layout.

3. Theme : Batik and block printing technique in geometrical or abstract design.
   For : Set of dinning room consisting of
   1. Table cloth and napkins or table mats and napkins.
   2. Oil painting in the theme of still life of ceramics and fruits.
   Fabric : Khadi/cotton
   Placement : Your choice based on the need.
   Method : The above three techniques.
   Dyes : Pigment
   Repeat : Based on the placement and theme.

Colour scheme : Minimum three colours including the back ground.
Practical submission: Standard sizes of the requirement.
Special feature : The application of the technique its limitations and its scops for effects.

4. Theme : Paisleymotifs with decorative form of floral pattern increased with black out line work.
For : Silk screen.
Method : Block printing on dyed fabric for discharge colourings.
Placement : Border on four sides with centre motif.
Dyes : Direct dyes for dyeing the cloth and discharge dyes for printing the block designs. Size of the fabric for practical submission 36"X 36".
Repeat : Based on the placement and formation of the blocks implied.
Colour scheme : Black outline.
Coloured background and two colours of the pattern.
Special feature : The discharge technique, as this technique replaces the original colours
and white on coloured back-ground, the intermingling of colour effect.
5. Theme : Sea Animals (Fishes),sea weeds and sea shells.

For : Bath room set.
Bath towel, bath mat, Hand towel, guest towel. Bath room curtains.
Fabric : Ready made set or toweling material for the towel set and cambric for the curtain.
Method : Lacquer screen printing.
Placement : Your choice.
Dyes : Acramyn
Repeat : Of your choice.
Colour scheme : On white back ground three stages one colour shades .
Practical submission: Standard sizes towels.
Special feature : The placement of designs and the colour effect.

6. Theme : Tantric Art.
For : Sitting room set consisting of carpet partition screen or room divider.
Method : Screen printing, block printing and any applied effect.

Placement : Your choice.
Dyes : Acramyn.
Repeat : Refer to special feature.
Colour scheme : Minimum 4 colours including the back ground. No white allowed in
the design.
Special feature : The curtain placement to the usual designs. Unholstry fabric design should have all over placement and more of textural quality the screen

should have all the applied art techneques (printing and embroidery etc.)

7. Theme : Floral patterm, flower heads buds, leaves and stem in intricate fine line work.
   For : Cambric.
   Method : Photographic screen printing.
   Dyes : Fancy dyes.
   Colour scheme : Two colour only.
   Placement : All cover.
   Repeat : 30 cm X 90 cm
   Submission of the practical : On 3(three) meter piece.
   Special feature : Photographic screen printing which has a good effect of the line work.

8. Theme : Opart.
   For : Sari.
   Fabric : Nylon or organdie.
   Method : Nozzle printing.
   Dyes : Enamel paint.
   Colour scheme : One colour only.
   Placement : All over.
   Repeat : Your choice.
   Submission of practical A complete sari.
   Special feature : The free hand moving.

9. Theme : Floral pattern
   For : Dress.
   Fabric : Cotton.
   Method : Spray painting with the stencil technique.
   Colour scheme : One colour only.
   Repeat : Your choice.
   Dyes : Mordant dyes.
   Placement : Half drop.
   Submission : 3 meter fabric.
   Special feature : Subduedeffect of the stencil and spraying effect of the dyes.

Design for Roller printing and photographic screens on paper only.

A. Theme : Stylised floral pattern.

For	:	Sarees (Synthetic)
Fabric	:	Synthetic material.
Method	:	Photographic screen printing.
Placement	:	All over.
Dyes	:	Pigments.
Repeat	:	40 cm. X 120 cm.
Colour Scheme	:	Four colours on white back ground.
B. Theme	:	Trees in prespective.
For	:	Curtains.
Fabric	:	Cotton stain.
Method	:	Roller printing.
Placement	:	In horizontal stripes.
Dyes	:	Acramyn.
Colour scheme	:	Trees colours during Autumn 3-4
Repeat	:	24" X 48"
		Transfer of Paper Design on cloth on the loom.

INSTRUCTIONAL STRATEGY

Student should be encouraged to participate in role play and other student centred activities in class room and actively participate in listening exercises

MEANS OF ASSESSMENT

- Assignments and quiz/class tests, mid-semester and end-semester written tests
- Actual practical work, exercises and viva-voce
- Presentation and viva-voce

10. RESOURCE REQUIREMENT

PHYSICAL RESOURCES

(A) Space requirement

Norms and standards laid down by All India Council for Technical Education(AICTE) are to be followed to work out space requirement in respect of class rooms, tutorial rooms, drawing halls, laboratories, space required for faculty, student amenities and residential area for staff and students.

(B) Equipment requirement:

Following Laboratories are required for PG Diploma in Tourism & Travel Management.

(C) Furniture Requirement

Norms and standards laid down by AICTE be followed for working out furniture requirement for this course.

Human Resources Development:

Weekly work schedule, annual work schedule, student teacherratio for various group and classsize,staffingpattern,workloadnorms,qualifications,experienceandjobdescriptionofteachingstaffworkshopstaffandotheradministrativeandotheradministrativeandsupportingstaffbeworkedoutaspernorms and standards laid down by the AICTE.

XI. LIST OF EQUIPMENT FOR DIPLOMA IN TEXTILE DESIGN

1. Only those of the equipment's given below which are essentially required for performing the practical's mentioned in the curriculum and are not available in the institute are to be procured by the institutions.

2. "Machines/Equipment's/Instruments of the old BTE list which are not included below are to be retained in the Lab. for demonstration purpose but not to be demanded a fresh for purchase."

S.NO. NAME OF EQUIPMENT	QTY. REQUIRED	APPROX.COST (Rs.)RATE
1. Handloom 36" Reed space with two	1 No.	50,000=00
boxes on either side with accessories		
Plain loom 36" reed space with plain		
tappet. Complete wooden frame with		
8 heald frame and reed. Weaves beam		
Two boxes at either side 100 empty		
pirns and 2 shuttles, Reed Count		
20,24,36,40 with all accessories		
Or Latest Configuration		
2. Handloom 36" Reed space	1 No.	65,000=00
with Dobby with Accessories		
Plain loom 36" reed space with dobby		
of 16 jacks, Complete wooden frame with		
4 heald frame and reed. Weaves beam		
2 Shuttle and 100 empty bobbin. Dobby		
with all accessoires-16 hooks, Reed Count		
20,24,36,40 with all accessories		

Or Latest Configuration		
3. Handloom with Jacquard (200 Hooks)	1 No.	60,000=00
4. Pirn winding machines with electric	1 No.	60,000=00
Motor and empty pirns & bobbins		
5 Hand Driven Charkha	1 No.	5,000=00
6. Sectional warping (ordinary) Machine	1 No.	45,000=00
with creel		
7. Cone Winding Machine	1 No.	50,000=00
8. Piano Card cutting Machine for Card	1 No.	30,000=00
Punching		
9. Power loom 36" reed space with 8 jacks	1 No.	75,000=00
dobby		
10. Model of mini carding plant	1 No.	14,20,000=00
250 mm working width 250 mm		
cylinder, doffer, feed roller, opening		
roller, striping roller, crush roller		
stainless under casing, take-up drum		
suitable for feeding, miniature draw		
frame with gear and pulleys to drive		
feed roller, cylinder and doffer and		
other accessories, Mechanical type		
possibility of processing 50 gms. per		
batch 10 "width, metallic wire clothing		
with complete accessories, Microprocessor		
based individual drive or Latest		
Configuration		
11. Model of mini spinning plan	1 No.	35,00,000=00
Draw Frame(Incl.Blow room Panel 1.2M,		
Comber, speed frame, Ring frame)		
Having 3 over 3		
drafting arrangement to process		
the silver from miniature carding		
machine with individual AC variable		

	speed motors with change gears to		
	vary the speeds of front roller,		
	middle and back roller for different		
	Total Draft and break Draft		
	inclusive of motor, rpm indicators		
	control system and other accessories		
	Mechanical type single delivery, 3 over		
	3 drafting arrangement, range 5-15 draft		
	Microprocessor based or Latest		
	Configuration		
	High Speed Simplex (Lab Model)		
	Latest Lab Model Range :6-12 Spindle		
	Suitable for 110 mm dia package		
	Draft Range=6-18, 3 roller apron		
	drafting arrangement SKF PK 1500,		
	individual AC variable speed motors		
	with control system with automatic		
	stop motion, Inching mechanism,		
	100 empty PP bobbins with complete		
	accessories and pinion according		
	to draft change with all complete		
	accessories or Latest Configuration		
	Ring Spinning Frame : No. of Spindle		
	6-12, mechanical speed 25000 rpm,		
	ring dia - 38 mm, 70mm gauge, 180 mm		
	lift, SKF PK 2025/2035, 3 over 3		
	drafting arrangement with short		
	cradles, for gearing arrangement to		
	change the total draft, Break draft		
	and TPI with change gears and other		
	accessories. Mechanical draft 10-50		
	Microprocessor based or Latest		
	Configuration		
12.	Standard Vertical Lea Tester (Yarn	1 No.	40,000=00
	strength tester)		
13.	Projection Microscope	4 Nos.	10,000=00
14.	Physical Balance (Electronic)	4 Nos.	15,000=00
15.	Reeling Machine	1 No.	30,000=00

16.	Speedy Moisture testing Machine	1 No.	10,000=00
17.	Pick Counting Glass	4 Nos.	75=00
18.	Knowels Yarn Balance	4 Nos.	12,000=00
19.	Beesely Yarn balance	4 Nos.	3,000=00
20.	Dry & wet bulb Hydrometer	1 No.	1,000=00
21.	Cloth Strength testing Machine	1 No.	50,000=00
	(Tensile Strength)		
22.	Air permeability tester	1 No.	50,000=00
23.	Stiff tester	1 No.	50,000=00
24.	Yarn Assonating Balance	1 No.	50,000=00
25.	Black Board (Graph)	1 No.	500=00
26.	WATER BATH :	15 Nos.	250=00
	(Electrically heated/Stoves Vessel)		
27.	Dye post porcelain ; Stainless steel	60 Nos.	50=00
28.	Glass rods per Kg.	L.S.	100=00
29.	MEASURING CYLINDER		
	(a) 5 C.C.	30 Nos.	N.A.
	(b) 100 C.C.	30 Nos.	25=00
	(c) 500 C.C.	5 Nos.	100=00
30.	Winchester Bottle (5 liters)	5 Nos.	150=00
31.	THERMOMETERS		
	(a) 0-100 C	2 Nos.	150=00
	(b) 100-200 C	2 Nos.	200=00
32.	Weighing Balance (physical)	1 No.	1000=00
33.	Electronic Balance(Range 01gr to 03kg)	2 No.	

34.	Buckets	5 Nos.	70=00
35.	Mugs	10 No.	8=00
36.	Cement Platform with three sinks		
	fitted in center 20'X 5'X 2'	1 No.	5,000=00
37.	Printing Table (5' X 20')	1 No.	5,000=00
38.	Exposing Table	1 No.	10,000=00
39.	Screens of Various sizes	10 Sets	Single 200=00
			Double 300=00
			Triple 400=00
40.	Electrically heated steam ager	1 No.	50,000=00
41.	Transfer Printing machine flat bat	1 No.	2,50,000=00
42.	Sample cutting machine	1 No.	10,000=00
43.	No. of blocks of various Design	10 Sets	Single 75=00
			Double 120=00
			Triple 175=00
			Four colour 225=00
44.	Bhagona (Utensil) Large Size	2 No.	250=00
	(Stainless Steel)		
45.	Dyes and Chemicals	L.S.	25,000=00
46.	Electric Iron Large (100 watt)	2 Nos.	250=00
47.	MODELS OF :		
	(a) Jigger	1 No.	75,000=00
	(b) Pudding Mangle	1 No.	75,000=00
	(c) Winch	1 No.	10,000=00
	(d) Stentor	1 No.	25,000=00
	(e) Model of Roller Printing M/c	1 No.	100000=00
	(Four Colour)		
48.	Miscellaneous item required for	L.S.	50,000=00

	craft practice and Drawing and		
	Rendering Lab		
	DESIGN STUDIO		
49.	Multi Media Projector	1 No.	100000=00
50.	Photocopier with enlargement and	1 No.	1,25,000=00
	reduction facility		
51.	Multi User Textile Design Software	1 No.	500000=00
	with CAD & CAM (Dobby, Jacquard & Printing)		
52.	Multi User Software for Garment Design	1 No.	1000000=00
	Digitizer & Plotter		
53.	Colour Printer with Scanner	1 No.	30000=00
54.	Computer with Latest Configuration (i5)	30 No.	2000000=00

S.NO.	NAME OF EQUIPMENT	QTY. REQUIRED	APPROX.COST @PER QTY. (Rs.)RATE	APPROX.COST (Rs.)RATE
55	Baer Sorter (For Fiber Length)	2	20000	40000
	Acrylic Transparent Sheet -			
	6"X8"X2 pices, 3"X8"X2 pcs			
	Fiber Mounting Templest			
	6"X8"X2 pices, 3"X8"X2 pcs			
	with tweezers, velvet pad,			
	scales, planchass with all			
	complete accessories or			
	Latest Configuration			
56.	Quadrant Balance	2	4000	8000
57.	R. B. Twist Tester	2	25000	50000
58.	One Inch Twist Tester	2	8000	16000
59.	Tearing Strength Tester	1	20000	20000
60.	Bursting Strength Tester	1	35000	35000
61.	Abrasion Resistance Tester	1	50000	50000
	(Martindle Type)			
62.	Laundro meter	1	50000	50000
	(For washing fastness testing)			
63.	Crock Meter Grey Scale	1	10000	10000
64.	Conditioning Oven	1	98500	98500
	220 V With capability of			

maintaining temperature up to			
100oC and facility for smooth			
variation of temperature inside			
27 liter.			
65. Stelo meter (For bundle Strength)	2	70000	140000
66. Water Repellency Tester	1	80000	80000
67. Pilling Tester	1	30000	30000
68. Crimp Rigidity Tester	2	20000	40000
Minor Load - 2 Gr. to 10Gr.			
in a step of one grams			
Major Load - 100 Gr. to 500 Gr.			
in step of 50 Grams			
Digital display 220 V, with all			
complete accessories or Latest			
Configuration			
69. Classimate (Yarn faults finding	1		900000
equipment)			
70. Round Sample of GSM with	1	35000	35000
Electronic balance			
71. Drape meter	2	25000	50000
72. Fabric Thickness Tester	3	8000	24000
73. A.S.T.M. Cards For Threads/Inch	1	15000	15000
74 Twist & Untwist Tester	2	35000	70000
75. Xenon Arc Tester For Colour	1	1500000	1500000
Fastness of Textile against			
sun light			
76 Model Rapier Loom 20" Reed Space	1	3800000	3800000
with winding & warping unit			
Complete Set			
77. Small Diameter Circular Knitting	1	160000	160000
3.5" dia & 36 gauge			
78. Flat Knitting Machine Computerized	3	250000	750000
& Mechanical Both			
79. Linking Machine (circular) 18 gauge	1	225000	225000
80. Crease recovery tester	2		
81. Fashion maker sewing machine	10		

NOTE:

1. Item No. 55 to 73 are common with Textile Technology course.

2. Indian make working laboratory models for costly equipment be purchased if available.

COMPUTER AIDED TEXTILE DESIGN LAB

S.No.	DESCRIPTION	QTY.	APPROX. COST (in Rs.)
1.	Core-2 Quad Processor, 4GB RAM 1 GB SATA HDD, 19" TFT Monitor/ Server of Latest Specification OS-Windows 2007/2008/Latest Version	02 Server	1,20,000=00
2.	General Desktop Computer-Intel i5 60 node or Higher(with latest Specification Pre loaded latest Anti Virus with Life time Subscription, Licence Media and Manual with UPS 660 VA with latest window OS Including licence OR Computer of latest Specification With latest window os including licence		36,00,000=00
3.	Software :((Latest Version)		
	i. MS OFFICE 2010/Latest Version		LS LS
	ii COMPILER 'C', C++, JAVA-7		LS LS
4.	Hardware		4,50,000.00 LS
	i. Switch-32 Port		02
	ii. Router		02
	iii. Hub		04(8 Port)
	iv. Ext. Modem		02
	v. Wireless N/W Adaptor		02
	vi. Series Access Point		02
	vii.LAN Cable Meter		05
	viii. LAN Cable Analyzer		05

	ix. Crimping Tool and all other accessories related to Networking	15	
5.	Scanner- Flat Bed A4/Auto Lighter (Bit depth 48)	02	20,000
6.	132 Column 600 CPS or faster 9 Pin dot matrix printer with 500 million character head life	02	50,000
7.	Laser Jet-A4 All In one 20 page per min (2 Each)	04	50,000
8.	Desk Jet-A4 Photo Smart (2 Each)	04	40,000
9.	5 KVA on line UPS with minimum 30 minute battery backup along with sealed maintenance free batteries. Provision for connecting external batteries with network connectivity.(For 2 Labs)	04	8,00000
10.	Split Air Conditioner 1.5 tones capacity with ISI mark along with electronic voltage stabilizer with over voltage and time delay circuit	08	35,0000
11.	Room preparation and furniture	LS	
12.	19" rack, 24-port switch. connector RJ-45 Cat-6 cabling for network	LS	10,0000
13.	2 KVA Inverter Cum UPS	02	6,0000
14.	Fire Extinguisher (2 Kg.)	04	15000
15.	Fire Extinguisher (5 Kg.)	04	25000
16.	Vacuum Cleaner	02	25000
17.	LCD Projector 3000 Lumen with all Accessories	02	350000
18.	Pen Drive 16 GB	10	10000
19.	DVD Writer External	02	10000
20.	HDD External 500 GB	02	15000
21.	PAD (Latest Configuration)	02	15000
22.	Broadband For Internet(Speed Min. 8mbps)	04	LS

23.	USB Modem		02	8000
24.	Generator 15 KVA Water Coolant		01	450000

7. LEARNING RESOURCE MATERIALS

1.	LCD Projector with Screen	1	--	20000
2.	Handicam	1	--	30000
3.	Cutting, Binding & Stitching equipment.	1	--	30000
4.	Desk Top Computer with Internet Core i5/i7- 760, Processor, Genuine Windiw 7, Professional 18 inch HD, Flat Panel Monitor Optical Mouse, Key Board & all related media or latest version	1	--	40000
5.	Home Theater Support Disc type CD. CDR/CDRW DVDR/DVDRW, VCD Supported with USB Port Support-DIVX/JPEG/MP3	1	--	25000
6.	Commerical P A System 16 W-220W output, AC & 24V DC Operated, 5 Mic. & 2 Auxilary input, Speaker output 4 Ohm, 8 Ohm, 17 V & 100 V	1	--	20000
7.	Interactive Board	1	--	50000

Note :

1. This center will be only one at the institute level irrespective of all branches.

REFERENCE BOOKS

1.	Art of Basic Drawing	Walter Foster
2.	How to Draw	Fester Series
3.	Its Fun to sketch with pencil and crayons	Thompson
4.	Garden Plants Michael	Wright
5.	The Animal Kindom	Cavendish
6.	Wild Life the Beauty of Animal	Bellanry
7.	Learn to Point Wildlife	Martiu Kuowelding
8.	How to Draw and Pint Landscape	Faster Series
9.	Still Life	Faster Series
10.	Batik Art	Sarla Sudersan
11.	Indian Embroidery	Kamladevi Chatopadhy
12.	Indian Embroidery	Jhon Irawin & Margwel Hall
13.	Craft Traditions of India	John Haithely
14.	Ideas and Techniques for Fabric	Laynda Flower
15.	Textile of the art and craft movement	Laynda Flower
16.	Hand Woven Fabric of India	Dhamija/Jain
17.	Indian Craft	D. N. Saraf
18.	Traditional Indian Textiles	Gillow John
19.	Master Pieces of Indian Textiles	Rustam J Metha
20.	Costumes and Textiles of India	Brij Bhusan
21.	Rooppard Art	Mooladhar Sharma & Agarwal
22.	Repeat Pattern	Phillips & Peter
23.	Abstract and Floral Design	E. A. Seguy
24.	Wastons' Textile Design & Colour	Z. Grosicki
25.	Grammer of Textile Design	Nisbet
26.	Structural Fabric Design	Kilby
27.	Woven Structures and Design	Doris Goerner
28.	Fabric to Fabric	Ghosh
29.	Elements of Carding and Drawing	A. R. Khare
30.	Cotton Opening and Picking	Gilbert R. Merill
31.	Cotton Drawing and Roving	Gilbert R. Merill
32.	Principles of weaving	Marks and Robinson
33.	Weaving Mechanism	N N Banerjee
34.	Weaving	Talukdar
35.	Textile Mathematics	J E Booth
36.	Fabric Manufacture	NCUTE
37.	Textile Fabre to Fabric	Corbean
38.	Textile Fibres	K P Hess
39.	Fundamental of Textiles and their Care	Sushila Dhantyagi
40.	Textile Science	J. T. Marsh
41.	Textile Science	Vilenski
42.	Fibre and Fabrics of Today	Mark

Corrected and Approved by Board of Technical Education, U.P., Lucknow in CDC Meeting held on 19.08.2023

43.	Textile Products Selection Use and Care	Alexander
44.	Textiles	William Morries
45.	The Standard Hand Book of Textiles	A. J. Hall
46.	Textiles in Perspective Era	Block and Smith
47.	Fibre and Fabric today	Hellon Thomson
48.	Form Fibers and Fabric	Elizabeth Crale
49.	Understanding Textiles	Phylip G. Tortora
50.	Processing of Fibres in Yarn	V. Usenko
51.	Textile Fibres	V. A. Shenai
52.	Textile Fibrics and Their Selection	Sabel B. Wintate
53.	Essentials of Textile	Marjory L. Jeseph
54.	Household Textiles and Laundary Work	Durga Dwelkar
55.	Colour Source Book For Graphic Designers	Sadao Nokamnar
56.	Designer : Guide to Colour	Sadao Nokamnar
57.	Colour Narnomy	Hideaki Chijiwa
58.	Colour Trends In	Two Volume Products Ltd.
59.	Roopprad Kala Ke Mooladjar	Sharma/Agarwal
60.	Repeat Pattern	Phippips & Peter

11. EVALUATION STRATEGY

11.1 INTRODUCTION

Evaluation plays an important role in the teaching-learning process. The major objective of any teaching-learning endeavor is to ensure the quality of the product which can be assessed through learner's evaluation.

The purpose of student evaluation is to determine the extent to which the general and the specific objectives of curriculum have been achieved. Student evaluation is also important from the point of view of ascertaining the quality of instructional processes and to get feedback for curriculum improvement. It helps the teachers in determining the level of appropriateness of teaching experiences provided to learners to meet their individual and professional needs. Evaluation also helps in diagnosing learning difficulties of the students. Evaluation is of two types: Formative and Summative (Internal and External Evaluation)

Formative Evaluation

It is an on-going evaluation process. Its purpose is to provide continuous and comprehensive feedback to students and teachers concerning teaching-learning process. It provides corrective steps to be taken to account for curricular as well as co-curricular aspects.

Summative Evaluation

It is carried out at the end of a unit of instruction like topic, subject, semester or year. The main purpose of summative evaluation is to measure achievement for assigning course grades, certification of students and ascertaining accountability of instructional process. The student evaluation has to be done in a comprehensive and systematic manner since any mistake or lacuna is likely to affect the future of students.

In the present educational scenario in India, where summative evaluation plays an important role in educational process, there is a need to improve the standard of summative evaluation with a view to bring validity and reliability in the end-term examination system for achieving objectivity and efficiency in evaluation.

11.2 STUDENTS' EVALUATION AREAS

The student evaluation is carried out for the following areas:

- Theory
- Practical Work (Laboratory, Workshop, Field Exercises)
- Project Work
- Professional Industrial Training

A. Theory

Evaluation in theory aims at assessing students' understanding of concepts, principles and procedures related to a course/subject, and their ability to apply learnt principles and solve problems. The formative evaluation for theory subjects may be caused through sessional /class-tests, home-assignments, tutorial-work, seminars, and group discussions etc. For end-term evaluation of theory, the question paper may comprise of three sections.

Section-I

It should contain objective type items e.g. multiple choice, matching and completion type. Total weightage to Section-1 should be of the order of 20 percent of the total marks and no choice should be given in this section. The objective type items should be used to evaluate students' performance in knowledge, comprehension and at the most application domains only.

Section-II

It should contain short answer/completion items. The weightage to this section should be of the order of 40 percent of the total marks. Again, no choice should be given in section-II

Section-III

It may contain two to three essay type questions. Total weightage to this section should be of the order of 40 percent of the total marks. Some built-in, internal choice of about 50 percent of the questions set, can be given in this section

Table II : Suggested Weightage to be given to different ability levels

Abilities	Weightage to be assigned
Knowledge	10-30 percent
Comprehension	40-60 percent
Application	20-30 percent
Higher than application i.e. Analysis, Synthesis and Evaluation	Upto 10 percent

B. Practical Work

Evaluation of students performance in practical work (Laboratory experiments, Workshop practicals/field exercises) aims at assessing students ability to apply or practice learnt concepts, principles and procedures, manipulative skills, ability to observe and record, ability to interpret and draw conclusions and work related attitudes. Formative and summative evaluation may comprise of weightages to performance on task, quality of product, general behaviour and it should be followed by viva-voce.

C. Project Work

The purpose of evaluation of project work is to assess students ability to apply, in an integrated manner, learnt knowledge and skills in solving real life problems, manipulative skills, ability to observe, record, creativity and communication skills. The formative and summative evaluation may comprise of weightage to nature of project, quality of product, quality of report and quality of presentation followed by viva-voce.

D. Professional Industrial Training

Evaluation of professional industrial training report and viva-voce/ presentation aims at assessing students' understanding of materials, industrial processes, practices in the industry/field and their ability to engage in activities related to problem-solving in industrial setting as well as understanding of application of

learnt knowledge and skills in real life situation. The formative and summative evaluation may comprise of weightages to performance in testing, general behaviour, quality of report and presentation during viva-voce.

12. RECOMMENDATIONS FOR EFFECTIVE CURRICULUM IMPLEMENTATION

This curriculum document is a Plan of Action and has been prepared based on exhaustive exercise of curriculum planning and design. The representative sample comprising selected senior personnel (lecturers and HODs) from various institutions and experts from industry/field have been involved in curriculum design process.

The document so prepared is now ready for its implementation. It is the faculty of polytechnics who have to play a vital role in planning instructional experiences for the courses in four different environments viz. class-room, laboratory, library and field and execute them in right perspective. It is emphasized that a proper mix of different teaching methods in all these places of instruction only can bring the changes in stipulated students behaviour as in the curriculum document. It is important for the teachers to understand curriculum document holistically and further be aware of intricacies of teaching-learning process (T-L) for achieving curriculum objectives. Given below are certain suggestions which may help the teachers in planning and designing learning experiences effectively. These are indicative in nature and teachers using their creativity can further develop/refine them. The designers of the programme suggest every teacher to read them carefully, comprehend and start using them.

(A) Broad Suggestions:

1. Curriculum implementation takes place at programme, course and class-room level respectively and synchronization among them is required for its success. The first step towards achieving synchronization is to read curriculum document holistically and understand its rationale and philosophy.
2. An academic plan needs to be prepared and made available to all polytechnics well in advance. The Principals have a great role to play in its dissemination and, percolation upto grass-root level. Polytechnics, in turn are supposed to prepare institutional academic plan.
3. HOD of every Programme Department along with HODs and incharges of other departments are required to prepare academic plan at department level referring to institutional academic plan.
4. All lecturers/Senior lecturers are required to prepare course level and class level lesson plans referring departmental academic plan.

(B) Course Level Suggestions

Teachers are educational managers at class room level and their success in achieving course level objectives lies in using course plan and their judicious execution which is very important for the success of programme by achieving its objectives.

Polytechnic teachers are required to plan various instructional experiences viz. theory lecture, expert lectures, lab/workshop practicals, guided library exercises, field visits, study tours, camps etc. In addition, they have to carry out progressive assessment of theory, assignments, library, practicals and field experiences. Teachers are also required to do all these activities within a stipulated period of time. It is essential for them to use the given time judiciously by planning all above activities properly and ensure execution of the plan effectively.

Following is the gist of suggestions for subject teachers to carry out T-L process effectively:

1. Teachers are required to prepare a course plan, taking into account departmental academic plan, number of weeks available and courses to be taught.
2. Teachers are required to prepare lesson plan for every theory class. This plan may comprise of contents to be covered, learning material for execution of a lesson plan. They may follow steps for preparing lesson plan e.g. drawing attention, state instructional objectives, help in recalling pre-requisite knowledge, deliver planned subject content, check desired learning outcomes and reinforce learning etc.
3. Teachers are required to plan for expert lectures from field/industry. Necessary steps are to plan in advance, identify field experts, make correspondence to invite them, take necessary budgetary approval etc.
4. Teachers are required to plan for guided library exercises by identification of course specific experience requirement, setting time, assessment, etc. The assignments and seminars can be thought of as terminal outcome of library experiences.
5. Concept and content based field visits may be planned and executed for such content of course which is abstract in nature and no other requisite resources are readily available in institute to impart them effectively.
6. There is a dire need for planning practical experiences in right perspective. These slots in a course are the avenues to use problem based learning/activity learning/ experiential learning approach effectively. The development of lab instruction sheets for the course is a good beginning to provide lab experiences effectively.
7. Planning of progressive assessment encompasses periodical assessment in asemester, preparation of proper quality question paper, assessment of answer sheets immediately and giving constructive feedback to every student
8. The student centred activities may be used to develop generic skills like task management, problem solving, managing self, collaborating with others etc.
9. Where ever possible, it is essential to use activity based learning rather than relying on delivery based conventional teaching all the time.
10. Teachers may take initiative in establishing liaison with industries and field organizations for imparting field experiences to their students.
11. Students be made aware about issues related to ecology and environment, safety, concern for wastage of energy and other resources etc.
12. Students may be given relevant and well thought out project assignments, which are purposeful and develop practical skills. This will help students in developing creativity and confidence for their gainful employment.
13. A Project bank may be developed by the concerned department of the polytechnics in consultation with related Industry, research institutes and other relevant field organizations in the state.

List of Participants (Experts)

The following experts have participated/ contributed in workshop for Developing Curriculum Scheme / Competency Profile of Three Year diploma course in Textile Design and Textile Design (Printing) for UP State through a Workshop held at IRDT Kanpur on dated 28-12-2021:

1.	Sh. D.K. Verma,	Dy. Dir., Directorate of Technical Education , U.P. Kanpur
2.	Sh. R.K Shrivastava,	Dy. Dir., Directorate of Tech. Education , U.P. Kanpur
3.	Sh. Pankaj Yadav,	Asstt. Dir., Directorate of Tech. Education , U.P. Kanpur
4.	Sh. Harish Kumar Sahu ,	Lecturer Textile Design , G.P. Farrukhabad
5.	Smt. Goldie Jaiswal,	Lecturer Textile Design , G.G.P. Prayagraj
6.	Dr. U.C. Sonkar,	Lecturer Textile Design , G.G.P. Varanasi
7.	Ar. Vikas Kulshreshtha,	Asstt. Prof., I.R.D.T., Kanpur

The following experts have participated/ contributed in workshop for Developing Curriculum Scheme / Competency Profile / Contents of 1st and 2nd Semester's subjects of Three Year diploma course in Textile Design and Textile Design (Printing) for UP State through a Workshop held at IRDT Kanpur on dated 20-05-2022 :

1.	Sh. B.D. Dixit	(Rtd.) Prof. U.P.T.T.I. Kanpur
2.	Dr. Alka Ali	(Rtd.) Prof. U.P.T.T.I. Kanpur
3.	Sh. Girish Verma	(Rtd.) Resident Manager . NITRA, Kanpur
4.	Sh.Arun Kumar Singh	Gangwar Associate Prof. Deptt. of Textile Technology, U.P.T.T.I. Kanpur
5.	Sh. D.K. Verma,	Dy. Dir., Directorate of Technical Education , U.P. Kanpur
6.	Sh. R.K Shrivastava,	Dy. Dir., Directorate of Tech. Education , U.P. Kanpur
7.	Dr. U. C. Sonkar,	Lecturer Textile Design , G.G.P. Varanasi
8.	Sh. Harish Kumar Sahu ,	Lecturer Textile Design , G.P. Farrukhabad
9.	Sh. P.K. Chaurasiya,	Lecturer Textile Design , G.P. Jigarsand Balia
10.	Sh. Himanshu Maurya,	Lecturer Textile Design , G.G.P. Prayagraj
11.	Sh. Rajeev Kumar,	Lecturer Textile Design , G.G.P. Gorakhpur
12.	Smt. Jyoti Singh ,	Lecturer Textile Design , G.G.P. Gorakhpur
13.	Ar. Vikas Kulshreshtha,	Asstt. Prof., I.R.D.T., Kanpur

The following experts have participated/ contributed in workshop for Developing Curriculum Scheme / Competency Profile / Contents of 3rd, 4th 5th and 6th Semester's subjects of Three Year diploma course in Textile Design and Textile Design (Printing) for UP State through a Workshop held at IRDT Kanpur on dated 18-01-2023 :

1.	Sh. D.K. Verma	Asstt. Prof., I.R.D.T., Kanpur
2.	Sh. Nagendra Prasad	HOD, Textile Design(Printing), G.P. Farrukhabad
3.	Dr. U. C. Sonkar,	Lecturer Textile Design , G.G.P. Varanasi
4.	Sh. Harish Kumar Sahu	Lecturer Textile Design , G.P. Farrukhabad
5.	Sh. P.K. Chaurasiya,	Lecturer Textile Design , G.P. Jigarsand Balia
6.	Sh. Himanshu Maurya	Lecturer Textile Design , G.G.P. Prayagraj
7.	Smt. Goldie Jaiswal	Lecturer Textile Design , G.G.P. Prayagraj
8.	Sh. Rajeev Kumar	Lecturer Textile Design , G.G.P. Gorakhpur
9.	Sri Sambhaskar Singh	Asstt. Prof., I.R.D.T., Kanpur
10.	Ar. Vikas Kulshreshtha,	Asstt. Prof., I.R.D.T., Kanpur

The following experts have participated/ contributed in workshop for Developing Curriculum Scheme / Competency Profile / Contents of 3rd, 4th 5th and 6th Semester's subjects of Three Year diploma course in Textile Design and Textile Design (Printing) for UP State through a Workshop held at IRDT Kanpur on dated 17-05-2023 :

1.	Sh. B.D. Dixit	(Rtd.) Prof. U.P.T.T.I. Kanpur
2.	Dr. Alka Ali	(Rtd.) Prof. U.P.T.T.I. Kanpur
3.	Sh. Girish Verma	(Rtd.) Resident Manager . NITRA, Kanpur
4.	Sh.Arun Kr.Singh Gangwar	Associate Prof. Deptt. of Textile Technology, UPTTI Kanpur
5.	Sh. D.K. Verma,	Asstt. Prof., I.R.D.T., Kanpur
6.	Sh. R.K Shrivastava,	Dy. Dir., Directorate of Tech. Education , U.P. Kanpur
7.	Sh Pankaj Yadav	Asstt. Dir., Directorate of Tech. Education , U.P. Kanpur
8.	Sh. Nagendra Prasad	HOD, Textile Design(Printing), G.P. Farrukhabad
9.	Dr. U. C. Sonkar,	Lecturer Textile Design , G.G.P. Varanasi
10.	Sh. P.K. Chaurasiya,	Lecturer Textile Design , G.P. Jigarsand Balia
11.	Sh. Himanshu Maurya,	Lecturer Textile Design , G.G.P. Prayagraj
12.	Smt. Goldie Jaiswal	Lecturer Textile Design , G.G.P. Prayagraj
13.	Sh. Rajeev Kumar,	Lecturer Textile Design , G.G.P. Gorakhpur
14.	Sri Sambhaskar Singh	Asstt. Prof., I.R.D.T., Kanpur
15.	Ar. Vikas Kulshreshtha,	Asstt. Prof., I.R.D.T., Kanpur