Curriculum for

P. G. Diploma Programme in

TEXTILE DESIGN

For the State of Uttar Pradesh

Prepared by:

Curriculum Development Centre

Institute of Research Development & Training

U. P. Kanpur

CONTENTS

Sr. No	Particulars	Page No.
-	Preface	4
-	Acknowledgement	5
1.	Salient Features of the Diploma Programme	6
2.	Employment Opportunities	7-8
3.	Learning Outcomes of the Programme	9
4.	Deriving Curriculum Areas from Learning Outcomes of the Programme	10
5.	Horizontal and Vertical Organization of the Subjects	11
6.	Study and Evaluation Scheme	12-13
7.	Guidelines for Assessment of Student Centered Activities	14
8.	Detailed Contents of various Subjects	15-39

FIRST SEMESTER

1.1	Textile Materials	15-16
1.2	Yarn Manufacturing Process	17-18
1.3	Fabric Construction And Cloth Analysis	19-20
1.4	Fabric Design-I	21-22
1.5	Textile Design-I (Practical)	23
1.6	Basic Design and Drawing and Study of Object (Practical)	24-25
1.7	Fabric Construction and Cloth Analysis(Practical)	26

SECOND SEMESTER

2.1	Indian Traditional Textile	27-28
2.2	Fabric Production	29-30
2.3	Textile Design-II	31-32
2.4	Introduction To CAD	33-34
2.5	*Environmental Studies	35-37
2.6	Textile Design-II (Practical)	38

2.7	Introduction To CAD (Practical)	39
10.	Resource Requirement	40
11.	Equipment Requirement	41-44
12.	Evaluation Strategy	45-46
13.	Recommendations For Effective Implementation of Curriculum	47-49
14.	Recommended Books	50-51

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 Technical Education, UP to revise the existing curricula of 12 diploma programmes as per the needs of the industry and making them NSQF compliant, are laudable.

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.

Manoj Kumar
Director
Institute of Research Development &Training,U. P.
Kanpur

ACKNOWLEDGEMENTS

We gratefully acknowledge the guidance and contribution received from the following persons:

1.	Shri R. K. Srivastava	Deputy Director, D.T.E., U.P., Kanpur
2.	Shri D. K. Verma	Deputy Director, D.T.E., U.P., Kanpur
3.	Shri Pankaj Yadav	Assistant Director D.T.E., U.P. Kanpur
4.	Shri R. K. Gupta	H.O.D./Principal, Govt. Poly.,Furrakhabad

1. SALIENT FEATURES OF POST GRADUATE DIPLOMA PROGRAMME IN TEXTILE DESIGN

1)	Name of the Programme	:	P. G. Diploma Programme in Textile Design
2)	Duration of the Programme	:	One years (Two Semesters)
3)	Entry Qualification	:	Graduate 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 Practice	:	45 : 55 (Approx.)

8) Entrepreneurship Development:

A full subject on Industrial Management and Entrepreneurship Development has been incorporated in the curriculum.

9) Student Centred Activities:

A provision of 3-6 hrs per week has been made for organizing Student Centred Activities for overall personality development of students. Such activities will comprise of co–curricular activities such as expert lectures, self study, games, hobby classes like photography, painting, singing etc. seminars, declamation contests, educational field visits, NCC, NSS and other cultural activities, disaster management and safety etc.

2. EMPLOYMENT OPPORTUNITIES OF POST GRADUATE DIPLOMA HOLDERS IN TEXTILE DESIGN

The P. G diploma holders in Textile Design find employment in the following organizations:

- Medium & Small scale industries
- Garment manufacturing industries
- Garment Sales Emporium
- Department of Education
- Orphanage
- Women Prison
- Deaf & Dumb Schools
- Angan bari
- Film Industry
- Advertising industry
- Modelling
- Fashion Designing
- Article Writing in Ladies Fashion magazines
- Painting on Pottery
- Enterpreneur

I- Textile Designer

II- Botic/Stencil/Screen Printing

III- Interior Decoration Courses

IV- Drawing & Painting Courses

V- House hold decorative Textile Articles

VI- Dying/Bleaching

VII- Garment Manufacturing

VIII-Consultancy Services.

3. LEARNING OUTCOMES OF POST GRADUATE DIPLOMA PROGRAMME IN TEXTILE DESIGN

At the end of the programme, the students will be able to know the knowledge of dyeing techniques, sewing techniques, printing methods, construction of fabrics and surface design. Through the course students can go for various arts, fashion, film industry and its related jobs. They can also join higher degree programmes after the course as its lays down a solid basis for the aspirants.

DERIVING CURRICULUM AREAS FROM LEARNING OUTCOMES OF THE PROGRAMME

The following curriculum area subjects have been derived from learning outcomes:

Sr. No.	Learning Outcomes	Curriculum Areas/Subjects
1.	Different Types of materials used in Fabric manufacture	Textile Materials
2.	Yarn types and charcteristics such as strength, twist and eveness of yarn	Yarn Manufacture Processes
3.	Varity of fabric and design and knowledge of base of textile designer	Fabric Construction and analysis
4.	Knowledge to generate self designs in fabric	Textile Design-I
5.	Skilled in free hand sketching of various types of object used in textile design	Basic Design, Drawing and Study of object
6.	Analysis of fabric during their manufacturing	Fabric Construction and Cloth Analysis
7.	Developmental history of textile	Indian TraditionalTextile
8.	Knowledge of manufacturing process during fabric production	Fabric Production
9.	Use appropriate procedures for preventing environmental pollution and energy conservation	Environmental Studies
10.	Decorative design, development and printing of fabrics	Textile Design-II
11.	Computer exposure for design and information using different types of software	Introduction To CAD

4. DERIVING CURRICULUM AREAS FROM LEARNING OUTCOMES OF THE PROGRAMME

The following curriculum area subjects have been derived from learning outcomes:

a) General Studies

1. Environmental Studies

b) Applied Courses in P G Diploma In Textile Design

1. Textile Materials
2. Yarn Manufacturing Process
3. Fabric construction and cloth analysis
4. Fabric Design-I
5. Textile Design-I (Practical)
6. Basic Design and Drawing and study of Objects (Practical)
7. Fabric Construction and Cloth Analysis (Practical)
8. Indian Traditional Textile
9. Fabric Production
10. Textile Design-II
11. Introduction To CAD
12. Textile Design-II (Practical)
13. Introduction To CAD(Practical)

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.	Textile Materials	4	-	-	-	-	-
2.	Yarn Manufacturing Process	4	-	-	-	-	-
3.	Fabric Construction And Cloth Analysis	6	-	-	-	-	-
4.	Fabric Design-I	6	-	-	-	-	-
5.	Textile Design-I (Practical)	7	-	-	-	-	-
6.	Basic Design, Drawing and Study of Object(Practical)	10	-	-	-	-	-
7.	Fabric Construction and Cloth Analysis (Practical)	10	-	-	-	-	-
8.	Indian Traditional Textile	-	4	-	-	-	-
9.	Fabric Production	-	6	-	-	-	-
10.	Textile Design-II	-	6	-	-	-	-
11.	Introduction To CAD	-	4	-	-	-	-
12.	*Environmental Studies	-	5	-	-	-	-
13.	Textile Design-II (Practical)	-	12	-	-	-	-
14.	Introduction To CAD (Practical)	-	8	-	-	-	-
15.	Student Centred Activities (SCA)	1	3	-	-	-	-
Total		**48**	**48**	**-**	**-**	**-**	**-**

7. STUDY AND EVALUATION SCHEME FOR DIPLOMA PROGRAMME IN P. G. DIPLOMA IN TEXTILE DESIGN

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		Th	Pr	Tot	Th	Hrs	Pr	Hrs	Tot	
1.1	Textile Materials	4	-	-	3	20	-	20	50	2 ½	-	-	50	70
1.2	Yarn Manufacturing Process	4	-	-	3	20	-	20	50	2 ½	-	-	50	70
1.3	Fabric Construction And Cloth Analysis	6	-	-	4	20	-	20	50	2 ½	-	-	50	70
1.4	Fabric Design-I	6	-	-	4	20	-	20	50	2 ½	-	-	50	70
1.5	Textile Design-I (Practical)	-	-	7	3	-	50	50	-	-	100	4	100	150
1.6	Basic Design,Drawing and Study of Object (Practical)	-	-	10	4	-	50	50	-	-	100	4	100	150
1.7	Fabric Construction and Cloth Analysis (Practical)	-	-	10	4	-	50	50	-	-	100	4	100	150
#Student Centred Activities		-	-	1	1	-	30	30	-	-	-	-	-	30
Total		20	-	28	25	80	180	260	200	-	300	-	500	760

Student Centred 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		Th	Pr	Tot	Th	Hrs	Pr	Hrs	Tot	
2.1	Indian Traditional Textile	4	-	-	3	20	-	20	50	2 ½	-	-	50	70
2.2	Fabric Production	6	-	-	4	20	-	20	50	2 ½	-	-	50	70
2.3	Textile Design-II	6	-	-	4	20	-	20	50	2 ½	-	-	50	70
2.4	Introduction To CAD	4	-	-	3	20	-	20	50	2 ½	-	-	50	70
2.5	*Environmental Studies	3	-	2	3	20	10	30	50	2 ½	20	3	70	100
2.6	Textile Design-II(Practical)	-	-	12	6	-	50	50	-	-	100	4	100	150
2.7	Introduction To CAD (Practical)	-	-	8	4	-	30	30	-	-	60	3	60	90
#Student Centred Activities		-	-	3	1	-	30	30	-	-	-	-	-	30
Total		23	-	25	28	100	120	220	250	-	180	-	430	650

* Common with other diploma programmes

\# Student Centred 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.

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 behaviour 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)

a)	75 - 80%	2 Marks
b)	80 - 85%	4 Marks
c)	Above 85%	5 Marks

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 TEXTILE MATERIALS

L	T	P
4	-	-

LEARNING OUTCOMES

After undergoing the subject, the students will be able to deal with the different types of designs over variety of textile fabrics. Before going through the design aspect one must know about the different types of materials used in fabric manufacture. The students are expected to know the arieties of different materials of the textile.

DETAILED CONTENTS

I- Introduction to world's sources of textile fibres (natural and manmade) and their utilisation General classification of fibres.

II- Essestional properties and uses of various varieties of cotton. Introduction to bast fibres; Flex, Jute, Hemp and Rammie.

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

IV- Introduction to wool-merino Mohair, Kashmere, Camel and alpaca. sorting and grading of wool. Introduction to wool fibre and elementary idea of different wool.

V- Introduction to Manmade fibres such as Nylons, Terelene, Acrylic and Rayons - Viscose, Acetate and Cupramonium.

VI- Introduction various to blends of the fibres, care of fabrics, spots removing, types of removing agent.

VII. Introduction to specilized fibres and technical textiles. Properties of specilized fibers such as Glass fibre, Cabiler fibre Aramide fibre, etc.

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

The Book List are given at the end of syllabus

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	**8**	**14**
2	**8**	**14**
3	**8**	**14**
4	**8**	**14**
5	**8**	**15**
6	**8**	**15**
7	**8**	**14**
Total	**56**	**100**

1.2 YARN MANUFACTURING PROCESS

L	T	P
4	-	-

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

I. Flow chart of the processes involved in the Conversion of fibres into Yarn and objective of different processes.

II. Brief study and working principles of blow room and carding.

III. Brief description and working of draw frame, combing and speed frame

IV. Brief description and working of ring frame, doubling frame and reeling.

V. Types of yarn and their uses along with brief idea of manufacturing, Numbering system and characteristics such as strength, twist and evenness of yearn. (No numerical question should be asked in the examination).

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

The Book List are given at the end of syllabus

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	10	20
2	10	20
3	12	15
4	12	25
5	12	20
Total	56	100

1.3 FABRIC CONSTRUCTION & CLOTH ANALYSIS

L	T	P
6	-	-

LEARNING OUTCOMES

After undergoing the subject, the students will be able to know the importance of the paper lies in the fact that it introduces the reader with different varieties of the fabric and designs and related technical terminology. Knowledge of these things very base of textile designer's working.

DETAILED CONTENTS

I. Classification of woven fabrics.

II. Introduction to technical terms used in cloth construction. Warp, weft, ends, picks, weave, design, repeat of design draft, pegplan and denting plan

III. Methods of ornamenting a fabric.

IV. Plain weave and its derivatives ie, warp rib, weft rib, and matt or hopsack or basket.

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

VI. Satin and sateen weaves, cork screw twills etc.

VII. Towelling weaves-Huckaback, honeycomb and brighten honeycomb.

VIII. Plain faced, Twill faced & wadded bed-ford cords.

IX. Crepe Weaves.

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

The Book List are given at the end of syllabus

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	6	7
2	8	8
3	10	14
4	10	14
5	12	15
6	8	8
7	10	10
8	10	10
9	10	14
Total	84	100

1.4 FABRIC DESIGN-I

L	T	P
6	-	-

LEARNING OUTCOMES

After undergoing the subject, the students will be able to generate self designs in the fabrics. Use of free hand sketching and their enlargement and fabric finishing activities.

DETAILED CONTENTS

1. Free hand sketching, enlargement and reduction of designs.

2. Composition of Bi-symmetrical and Multi-symmetrical figures suitable for corner and centre placement.

3. Development of stripe and check pattern -

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

4. Development of design - suitable for dobby

5. Development of design suitable for Jacquards.

6. Development of decorative geometrical designs.

7. Development of all over design of different form - Natural, Abstract, Geometrical and traditional modified.

8. Introduction to Electronic Jacquard.

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

The Book List are given at the end of syllabus

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	**10**	**12**
2	**12**	**13**
3	**15**	**16**
4	**10**	**13**
5	**10**	**13**
6	**10**	**13**
7	**9**	**10**
8	**8**	**10**
Total	**84**	**100**

1.5 TEXTILE DESIGN-I (PRACTICAL)

L	T	P
-	-	7

LEARNING OUTCOMES

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

Preparation of 12 drawing sheets on the basis of theory syllabus to be ornamented by different colours and system.

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

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

RECOMMENDED BOOKS

The Book List are given at the end of syllabus

1.6 BASIC DESIGN, DRAWING AND STUDY OF OBJECT (PRACTICAL)

L T P
- - 10

LEARNING OUTCOMES

After undergoing the subject, the students will be able to learn basic design aims at bringing about various attributes to the viewer sensitive to environment.The students should be assigned appropriate learning exercises so as to enable them to discover the principles and elements of design. Emphasis should be laid on exercies ertaining to the study of nature and environment.Student should be exposed to nature and environment through performing arts, rural environment, natural scenery, landscapes etc. The emphasis should be on creativity rather than sticking to rules or preconceived notions.

By the study of this subject the students will be skilled in free hand sketching of the various types of objects generally used in the textile designs. They will also be acquainted in using colours including poster colours in the variety of objects. They will be trained in taking photograps and finding the motive from them.

BASIC DESIGN :

1. INTRODUCTION TO ALL MEDIAS OF EXPRESSION,TOOLS AND ART MATERIALS

Pencils.

Types of colour.

Paper and other materials.

Equipment for creating textures.

T-Squares,set-squares,drawing board.

Compass and liner.

Use of Epidiascope and Photocopier for enlargement and reduction of froms and figures.

2. **OBSERVATION AND RECALL AS AIDS TO EXPRESSION :**

Observing and recapitulating a given object or situation using any mode of expression.

3. **IMPORTANCE OF ELEMENTS OF BASIC DESIGN :**

Dots, Lines and shapes, Tint, Shade and Tones. colour and texture.

4. **PRINCIPLES OF BASIC DESIGN :|**

Relationship of negative and positive space, Balance. Proporation, scale, harmony, contrast, variety unity, Rhythm.

5. **CONCEPT OF ILLUSTION IN ART EXPRESSION** |

Three dimensional effect. Optical Illusion.

6. **SKETCHING :**

All the following to be done in different mediums i.e. pencil/ ink/felt pen/crayon

A. Sketches of flowers and twigs.
B. Sketches of vegetables and fruits.
C. Sketches of trees and foliage.

Study of the following in pencil with light and shade.

7. Wooden Blocks.

8. Bottles, Earthen pots

9. Plates.

10. Bowl.

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

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

RECOMMENDED BOOKS

The Book List are given at the end of syllabus

1.7 FABRIC CONSTRUCTION & CLOTH ANALYSIS (PRACTICAL)

L	T	P
-	-	10

LEARNING OUTCOMES

After undergoing the subject, the students will be able to learn the importance of the paper lies in the fact that it introduces the reader with different varieties of the fabric and 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 as identification of warp and weft, direction, face and back of the fabric ends per inch, warp and weft, warp and weft twist direction and ply. Warp crimp percentage and weft crimp percentage, weave weight per square yard and meter of common use fabrics.

II Semester

2.1 INDIAN TRADITIONAL TEXTILE

L	T	P
4	-	-

LEARNING OUTCOMES

After undergoing the subject, the students will be able to learn the developmental history of textiles proves many times more enlightening to deal and solve even the present day problems. So its importance can not be ignored.

DETAILED CONTENTS

1. INTRODUCTION TO INDIAN WOVEN TEXTILE :

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

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.

   1. Phulkari
   2. Kashmir embroidary
   3. Chickankeri
   4. Bengal Kantha
   5. Sanganari
   6. Kalamkari
   7. Patola
   8. Bandhani
   9. Ikat
   10. Kullu Shawls
   11. Brocades
   12 Jamdani
   13. Chanderi
   14. Dharmavaram
   15. Kanchipuram
   16. Baluchar
   17. Tanchoi
   18. Madhubani

4. **INTRODUCTION TO INDIAN CRAFT :**

A brief introduction to the following craft with special reference to their location tools and materials used, and their special features.

Wood Work(Block Printing), Mirror Work (Embroidered), Fabric Painting (Printed and Painted textiles of India), Metal work (Pottery (Ceramics), Ivory and stone work, Carpet and Floor covering.

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

The Book List are given at the end of syllabus

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	**12**	**24**
2	**12**	**24**
3	**20**	**28**
4	**12**	**24**
Total	**56**	**100**

2.2 FABRIC PRODUCTION

L	T	P
6	-	-

LEARNING OUTCOMES

After undergoing the subject, the students will be able to gain the knowledge of manufacturing process which is the matter of imparitive importance to textile designer. So is the importance of the paper.

DETAILED CONTENTS

I. Flow chart of the process involved in the conversion of yarns into fabrics and objective of different processes.

II. Brief study and working principles of cheese winding, warp winding, weft winding, weft winding, warping and sizing.

III. Classification of various size of weaving machine. Study of handloom, power loom and elementry knowledge of automatic looms.

IV. Brief study of drop box, dobby and jacquard.

V. Introduction to knitied fabrics and various types of knitting machines (Warp knit and Weft knit machines only)

VI. Introduction of air-jet repier and projectile 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

RECOMMENDED BOOKS

The Book List are given at the end of syllabus

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	**17**	**21**
2	**17**	**21**
3	**17**	**21**
4	**17**	**21**
5	**16**	**16**
Total	**84**	**100**

2.3 TEXTILE DESIGN - II

L	T	P
6	-	-

LEARNING OUTCOMES

After undergoing the subject, the students will be able to learn decorative designs, development & printing and their transfer to fabrics.

DETAILED CONTENTS

1. Development of pattern by colour and weave effect.

2. Construction of motif suitable for printing and weaving.

3. Preparation of motif, figures and their arrangement. Graph designs suitable for Dobbies and jacquards.

4. 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.

5. Transfering of design of shirting sarees, brocades etc to the point paper. Ways of arrangement of figures or motifs.

6. Transfering of design on graphic (Point), Paper, edging and insertion of weaves in figured protion and on ground.

7. Brief idea of special and complex fabries e.g. Double cloth, Brocades, Tapestries and Damarks.

8. Brief idea of Turkish Towelling fabric and their ornamentation.

9. 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

The Book List are given at the end of syllabus

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	**6**	**7**
2	**8**	**8**
3	**10**	**14**
4	**10**	**14**
5	**12**	**15**
6	**8**	**8**
7	**10**	**10**
8	**10**	**10**
9	**10**	**14**
Total	**84**	**100**

2.4 INTRODUCTION TO CAD

L T P
4 - -

LEARNING OUTCOMES

After undergoing the subject, the students will be able to learn computers that are being used for design and information processing in all branches of engineering. An exposure to fundamentals of computer programming is very essential for all diploma holders. this subject has been included to introduce students in the use and application of computers in engineering.

DETAILED CONTENTS

1. **Introduction to Computer:**

Block Diagram of Computer, Types Of Computer Central Processing unit (Control unit, A.L.U.) & memory Unit. Types of Input and Output devices and memories. Visual Display Unit, Keyboard, Floppy disk drive, Hard disk drive, CD-ROM Drive, Magnetic & Number system(Conversion) Binary, Octal, Hexa decimal number system, Bit, Byte and Word.

2. **DOS/WINDOWS:**

Internal & External Commands of DOS, Features Of Windows.

3. **INTRODUCTION TO MS OFFICE :**

MS POWERPOINT, MS PROJECT

4. **MS WORD PROCESSING:**

File : Open, Close, Save and Find File, Print and Page Setup
Edit : Cut, Copy, Find, Replace
Insert: Page Insert, Page No., Symbole
Font : Paragraph, Tabs, Boder & Shading, Change Case
Tools : Spelling, Mail Merge
Table : Insert Table, Delete Cells, Merge Cell, Sort Text

5. **COMPUTER AIDED WOVEN DESIGN :**

Introduction to software for textile woven design with windows platform, Study of software for Dobby/Jacquard Design.

6. COMPUTER IN GARMENT INDUSTRY:

Software for pattern making, grading and sorting.

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

The Book List are given at the end of syllabus

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	**12**	**21**
2	**12**	**21**
3	**12**	**21**
4	**12**	**21**
5	**8**	**16**
Total	**56**	**100**

2.5 ENVIRONMENTAL STUDIES

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

a. 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 O_2, 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; Satya Prakashan, 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; Dhanpat Rai and Co. (P) Ltd. Delhi.
5. Engineering Chemistry by Jain and Jain; Dhanpat Rai and Co. (P) Ltd. Delhi.
6. Environmental Studies by Erach Bharucha; University Press (India) Private Ltd., Hyderabad.
7. Environmental Engineering and Management by Suresh K Dhamija; S K Kataria and 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**

2.6 TEXTILE DESIGN – II (PRACTICAL)

L	T	P
-	-	12

LEARNING OUTCOMES

After undergoing the subject, the students will be able to learn decorative designs, development & printing and their transfer to fabrics.

Transfer of paper design on print paper and to produce a cloth on the loom using the same. Market surveying and production of fabrics using original designs. Preparation of sheet on the basis of theory Syllabus.

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

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

RECOMMENDED BOOKS

The Book List are given at the end of syllabus

2.7 INTRODUCTION TO CAD (PRACTICAL)

L	T	P
-	-	8

1. Document preparation using MS Word.
2. Presentation technique by using MS Power Point.
3. Get into the window. Draw a picture in accessories. Paint and comy that picture to another place through window explorer.
4. Creating, Editing, Modifying database file, Label, Report, Format & Query.
5. Use All commonds of DOS.
6. Use all the features and utilities of MS Word.
7. Selection of command using Windows.
8. Practices on E-Mail & Websites.

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

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

RECOMMENDED BOOKS

The Book List are given at the end of syllabus

Websites for Reference:

10. RESOURCE REQUIREMENT

10.1 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 P. G. Diploma Programme in Textile Design:

- Textile Design-I
- Basic Design and Drawing and Study of Object
- Fabric Construction and Cloth Analysis
- Textile Design-II
- Introduction To CAD
- Environment Engineering Lab

EQUIPMENT REQUIRED FOR POST GRADUATE DIPLOMA IN TEXTILE DESIGN

Sr. No.	Description	Qty	Total Price (Rs)
1.	Handloom 36" Reed space with two boxes on either side	1	25,000
2.	Handloom with dossy 36" Reed space	1	55,000
3.	Handloom with Jacquard (1005 Side) Reed space	1	60,000
4.	Pirn winding machines with electric Motor and empty pirns & bobbins	1	60,000
5.	Hand Driven Charkha	1	5,000
6.	Sectional warping (ordinary) Machine with creel	1	45,000
7.	Cone Winding Machine	1	50,000
8.	Piano Card cutting Machine for Card	1	30,000
9.	Power loom 36" reed space with 8 jacks dobby	1	75,000
10.	Model of mini carding plant	1	3,00,000
11.	Model of mini spinning plant	1	2,00,000
12.	Standard Vertical Lea Tester (Yarn strength tester)	1	40,000
13.	Microscope	4	10,000
14.	Physical Balance	4	1,500
15.	Reeling Machine	1	30,000
16.	Speedy Moisture Testing Machine	1	10,000
17.	Pick counting Glass	4	75
18.	Knowels Yarn Balance	4	12,000
19.	Beesely Yarn Balance	4	3,000
20.	Dry and Wet Bulb Hydrometer	1	1,000
21.	Colth Strength Testing Machine	1	50,000
22.	Shirley Air Permeability Tester(Shirley Crease Recovery Tester)	1	50,000
23.	Shirley Stiff tester	1	50,000
24.	Yarn Assonting Balance	1	50,000
25.	Black Board(Graph)	1	5,00
26.	Water bath (Electrically Heated/stoves Vessel)	15	2,50
27.	Dry Post Porceline : Stainless Steel	60	50
28.	Glass Rod	L.S.	1,00 Per
29.	Measuring Cylinder- 5 CC	30	NA
30.	Measuring Cylinder- 100 CC	30	25
31.	Measuring Cylinder- 500 CC	5	1,00
32.	Winchester Bottel (5 Liters)	5	1,50
33.	Thermometers 0-100 C	2	1,50
34.	Thermometers 100-200 C	2	2,00
35.	Weight Balance (Physical)	1	1,000
36.	Open Balance	1	3,00
37.	Buclets	5	70
38.	Mugs	10	8
39.	Cement Plateform with three sinks fitted in centre 20'X5'X2'	1	5,000

40.	Printing Table (5’ X 20’)	1	5,000
41.	Exposing table	1	10,000
42.	Sereen of Various Size- Single	10	2,00
43.	Sereen of Various Size- Double	10	3,00
44.	Sereen of Various Size- Triple	10	4,00
45.	Electrically Heated Steam Ager	1	50,000
46.	Transfer Printing Machine Flat bat	1	2,50,000
47.	Simple Cutting Mahine	1	10,000
48.	No. of Block of Various Design-Single Colour	10	75
49.	No. of Block of Various Design-Double Colour	10	1,20
50.	No. of Block of Various Design-Triple Colour	10	1,75
51.	No. of Block of Various Design-Four Colour	10	2,25
51.	Bhigona Large Size (Stainless Steel)	2	2,50
52.	Dyes and Chemicals	LS	25,000
53.	Electric Iron Large (100 watt)	2	2,50
54.	Model of Jigger	1	75,000
55.	Model of Pudding Mangle	1	75,000
56.	Model of Winch	1	10,000
57.	Miscellaneous Items required for Craft Practice and Drawing and Rendering Lab	LS	50,000
Design Studio			
58.	Epidiascope	1	10,000
59.	Photocopier with enlargement and reduction facility	1	1,25,000
Introduction To CAD-Computer Center			
56.	Core-2 Quad Processor, 4GB RAM 1 GB SATA HDD, 19" TFT Mointor OS-Windows 2007/2008/Latest Version	2 Server	1,20,000
57.	General Desktop Computer-Intel i5 or Higher, 2GB RAM, 320 GB SATA HDD, 17" TFT/LCD/LED Monitor, DVD Wirter Multi Media Kit with Key Board-Multimedia, Mouse- Optical Scrool or Latest, 32 Bit PCI ETHERNET CARD (10/100) Mbps, Internet Modem, Pen Drive 16 GB, Pre loaded latest Anti Virus with Life time Subscription, Licence Media and Manual with UPS 660 VA OR Computer of latest Specification	60 Node	3,60,0000
58.	Software : MS OFFICE 2010, COMPILER 0 'C', C++, JAVA-7, Personal Web Server, HTML, IIS	LS	

59.	Hard Ware i. Switch-32 Port ii. Router iii. Hub iv. External Modem v. Wireless N/W Adaptor vi. Series Access Point vii. LAN Cable Meter viii. LAN Cable Analyzer ix. Crimping Tool and Accessories related to Networking	LS 2 2 4(8 Port) 2 2 2 5 5 15	4,50,000
60.	Scanner-flat Bed A4/Auto Lighter(Bit depth 48)	2	20,000
61.	132 Column 600 CPS or faster 9 Pin dot matrix printer with 500 million character head life	2	50,000
62.	Laser Jet-A4 All In one 20 page per min (2 Each)	4	50,000
63.	Desk-Jet A4 Photo Smart (2 each)	4	40,000
64.	5 KVA on line UPS with minimum 30 miniute battery backup along with sealed maintenance free batteries. Provision for connecting external batteries with network connectivity.(For 2 Labs)	4	80,0000
65.	Split Air Conditioner 1.5 tones capctity with ISI mark along with electronic voltage stablizer with over viltage and time delay circuit	8	35,000
66.	Room preparation and furniture	LS	
67.	19" rack, 24-port switch. connector RJ-45 Cat-6 cabling for network	LS	10,000
68.	2 KVA Inverter Cum UPS	2	6,000
69.	Fire Extinguisher (2 Kg.)	4	15,000
70.	Fire Extinguisher (4 Kg.)	4	25,000
71.	Vaccum Cleaner	2	25,000
72.	LCD Projector 3000 Lument with all accessories	2	3,50,000
73.	Pen Drive 16 GB	10	10,000
74.	DVD Writer External	2	10,000
75.	HDD External 500 GB	2	15,000
76.	PAD (Latest Configuration)	2	15,000
77.	Board Band for Internet (Speed Min. 8 Mbps	4	LS
78.	USB Modemeaner	2	8,000
79.	Generator 15 KVA Water Coolent	1	4,50,000

NOTE:

In addition to the above, laboratories in respect of physics, chemistry, Computer Centre etc will be required for effective implementation of the course. Provision for photocopiers, PC facilities along with LCD Projection System etc. has also to be made.

(C) Furniture Requirement

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

10.2 Human Resources Development:

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

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)

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.

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 a semester, preparation of proper quality question paper, assessment of answer sheets immediately and giving constructive feed back 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.

Recommended 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
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