

6.1 COMPUTER AIDED TEXTILE DESIGN – III

L	T	P	Cr
-	-	6	3

RATIONALE

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

DETAILED CONTENTS

Related Theory for Practical Exercises

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

PRACTICAL EXERCISES

- 1 Create design in accordance of the project in Coral and convert the file in JPeg, Tiff and other image software
- 2 Scan your hand printed designs and convert them using CoralDraw for furnishing fabrics
- 3 Use of symbols, multi-colour designs to print bromides of different colours in black through laser printer for exposing photographic screens
- 4 Different scanned images to be combined for final design
- 5 Convert surface design to woven design and other way
- 6 Designs to have perfect repeats for final woven or printed fabrics

RECOMMENDED BOOKS

1. CAD in clothing and textiles by W. Aldrich

2. A magazine on Computer in the world of textiles
3. Software, CoralDraw, Photoshop, NedGraphics

6.2 TEXTILE TESTING AND QUALITY CONTROL - II

L T P Cr
3 - 4 5

RATIONALE

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

DETAILED CONTENTS

Sr. No.	Theory	Practical.
1.	Common fabric defects, their analysis and remedial measures (3 hrs)	Identification of Fabric faults.
2.	Definition of Crimp and take-up. Measurement of crimp by Crimpmeter. Crimp, take-up and fabric properties (6 hrs)	Crimp measurement of warp & weft of fabric with help of crimpmeter
3.	Fabric thickness and its measurement. Measurement of fabric weight. (3 hrs)	Measurement of fabric thickness by thickness tester.
4.	Introduction of fabric stiffness, handle and drape. Measurement of fabric stiffness. Drapemeter and its working. (4 hrs)	Measurement of fabric weight. (i) Measure of stiffness of fabric. (ii) Use of drapemeter
5.	Crease recovery and its measurement. (3 hrs)	Measurement of crease, recovery angle of fabric. (warp and weft direction)
6.	Pilling of fabric. Its measurement. (3 hrs)	Use of pilling tester
7.	Testing of fabric strength. (Tensile, tearing and bursting strength) (4 hrs)	Measurement of tensile, bursting and tearing strength tests with the help of Tensile Strength Tester, Bursting

		Strength Tester and Tearing Strength Tester.
8.	Moisture relations & testing. Definition of Moisture Regain . Moisture Content; Absolute Humidity & Relative Humidity. Relation between Regain and Humidity. Standard Laboratory Conditions Measurement of Moisture Regain by Drying Ovens and Electronic Moisture Meter. (6 hrs)	Measure of moisture content of yarn & fabric by electronic moisture meter and drying oven.
9.	Fabrics shrinkage and its measurement. (3 hrs)	Use of Laundrometer for measurement of shrinkage.
10.	Water Absorbency properties of various fabrics. (4 hrs)	Use of water absorbency tester to measure water absorbency properties of a fabric
11.	Flammability, factors effecting flammability of fabrics. Measurement of flammability (4 hrs)	Flammability testing with the help of Flammability Tester
12.	Concepts of serviceability, wear and abrasion., their measurement and interpretation of results. (5 hrs)	Testing with wear and abrasion tester.

INSTRUCTIONAL STRATEGY

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

RECOMMENDED BOOKS

1. Textile Testing by JE Booth
2. Textile Testing by Grover and Hamby
3. Textile Testing by Angapan
4. Textile Testing by John H.Skinkle;

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
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1	3	6
2	6	12
3	3	6
4	4	8
5	3	6
6	3	6
7	4	8
8	6	14
9	3	6
10	4	8
11	4	8
12	5	12
Total	48	100

6.3 ENTREPRENEURSHIP DEVELOPMENT AND MANAGEMENT

L T P Cr
4 - - 4

RATIONALE

Entrepreneurship Development and Management is one of the core competencies of technical human resource. Creating awareness regarding entrepreneurial traits, entrepreneurial support system, opportunity identification, project report preparation and understanding of legal and managerial aspects can be helpful in motivating technical/ vocational stream students to start their own small scale business/enterprise. Since diploma technicians are expected to take-up middle level managerial positions, their exposure to basic management principles is very essential. Based on the broad competencies listed above, following detailed contents have been finalized to develop the appropriate competencies.

DETAILED CONTENTS

(1) Entrepreneurship

(10 hrs)

- 1.1 Concept/Meaning and its need
- 1.2 Competencies/qualities of an entrepreneur
- 1.3 Entrepreneurial Support System e.g., District Industry Centres (DICs), Commercial Banks, State Financial Corporations, Small Industries Service Institutes (SISIs), Small Industries Development Bank of India (SIDBI), National Bank for Agriculture and Rural Development (NABARD), National Small Industries Corporation (NSIC) and other relevant institutions/organizations at State and national level

(2) Market Survey and Opportunity Identification (Business Planning)

(10 hrs)

- 2.1 How to start a small scale industry
 - 2.2 Procedures for registration of small scale industry
 - 2.3 List of items reserved for exclusive manufacture in small scale industry
 - 2.4 Assessment of demand and supply in potential areas of growth
 - 2.5 Understanding business opportunity
 - 2.6 Considerations in product selection
 - 2.7 Data collection for setting up small ventures
- (3) Project Report Preparation (08 hrs)
- 3.1 Preliminary Project Report
 - 3.2 Techno-Economic feasibility report
 - 3.3 Project Viability Report
- (4) Managerial Aspects of Small Business (10 hrs)
- 4.1 Principles of Management, Definitions, functions of management viz planning, organization, coordination and control
 - 4.2 Structure of an industrial organization.
 - 4.3 Basic principles of financial management
 - 4.4 Marketing Techniques
 - 4.5 Personnel Management, staff development and training strategies
 - 4.6 Importance and techniques of communication in business
- (5) Legal Aspects of Small Business (10 hrs)
- 5.1 Elementary knowledge of Income Tax, Sales Tax, Patent Rules, Excise Rules, provident fund
 - 5.2 Elementary knowledge of Factory Act, 1948 and Payment of Wages Act 1936, Workmen Compensation Act, Industrial Dispute act 1947, Employees State Insurance Act 1978
- (6) Environmental Considerations (04 hrs)
- 6.1 Concept of ecology and environment
 - 6.2 Factors contributing to Air, Water, Noise pollution
 - 6.3 Air, water and noise pollution standards and control
 - 6.4 Norms and standards of State pollution Board
 - 6.5 Disaster Management – basic idea
- (7) Miscellaneous (12 hrs)
- 7.1 Human resource development in an organization

- 7.2 Motivation – Incentives, Rewards, Job Satisfaction
- 7.3 Leadership- types, qualities, functions and factors of effective leadership
- 7.4 Labor Welfare schemes including wage payment- types, system of wage payment and incentives
- 7.5 Workers participation in management, case studies in effective Management.
- 7.6 Accident and Safety: Classification, precaution and treatment after accident, safety practices promotion, personal protection equipment (PPFs) for safety at work places.
- 7.7 Introduction to Total quality Management (TQM) and steps to achieve this .
- 7.8 Intellectual Property Rights (IPR): Concept, definition, infringements and remedies related to patents, copy rights, trademarks, designs. Introduction to registering procedure

INSTRUCTIONAL STRATEGY

The aim of this subject is to develop conceptual understanding by giving inputs and exposure about starting ones own business venture/enterprise. The teacher will discuss success stories and case studies with students, which in turn, will develop managerial qualities in the students. There may be guest lectures by successful diploma holding entrepreneurs and field visits also.

RECOMMENDED BOOKS

1. A Handbook of Entrepreneurship, Edited by BS Rathore and Dr JS Saini; Aapga Publications, Panchkula (Haryana)
2. Entrepreneurship Development by CB Gupta and P Srinivasan, Sultan Chand and Sons, New Delhi
3. Environmental Engineering and Management by Suresh K Dhamija, SK Kataria and Sons, New Delhi
4. Environmental and Pollution Awareness by Sharma BR, Satya Prakashan , New Delhi
5. Thakur Kailash, Environmental Protection Law and policy in India: Deep and Deep Publications, New Delhi
6. Handbook of Small Scale Industry by PM Bhandari
7. Marketing Management by Philip Kotler, Prentice Hall of India, New Delhi
8. Industrial management by N. Mohan, and AP Verma, SK Kataria and Sons, Nai Sarak, Delhi-110006
9. Total Quality Management by Dr DD Sharma, Sultan Chand and Sons, New Delhi.
10. Principles of Management by Philip Kotler TEE Publication
11. Intellectual Property Rights and the Law by Dr. GB Reddy.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1.	10	10
2.	10	20
3.	08	10
4.	10	15
5.	10	15
6.	04	10
7.	12	20
Total	64	100

6.4 MAJOR PROJECT WORK (Industry Oriented – Practice Based)

L	T	P	Cr
-	-	19	10

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

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

The assessment of project work shall be based on:

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

Suggested Problems for Project Work

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

- i) Floral pattern in stylized and naturalistic form
- ii) Indian mythology depicting a Mahabhartta scene
- iii) Batik and tie and dye technique in geometrical on abstract design
- iv) Paisley motifs within decorative form of floral pattern increase with blackout line work
- v) Sea animals (fishes), sea breeds and sea shells

- vi) Tantric art
- vii) Floral pattern flowers heads, buds, leaves and stems in line work of art
- viii) Analysis of design, transfer on trace sheets, preparation of screen for multi-coloured effect through photoelectric method
- ix) Mix and match effects of tie-dye and batik
- x) Different printing effect on different class of fabrics
- xi) Hand print with the help of acramine dyes
- xii) Discharge effect produced on silk
- xiii) Production of various designs on man-made fabric by heat treatment
- xiv) Production of white design (creep) on white ground (self patterns) on cotton
- xv) Texture effects on different types of fabrics
- xvi) Wash-down effect on various dyed fabrics using enzymes, hypochlorites, pomanganetes and pumice stors
- xvii) Consideration of weave and coloured patterns
- xviii) Causes of lab to variations in dyeing
- xix) Preparation of different shades and their comparability with similar dyes
- xx) Dyeing of samples by changing dyeing parameters

Note:

These projects are only suggestive list. The students may take other projects also in consultation with concerned teacher.