GUJARAT TECHNOLOGICAL UNIVERSITY

BRANCH NAME: TEXTILE TECHNOLOGY (29)
SUBJECT NAME: CAD IN TEXTILES
SUBJECT CODE: 2172910
B.E. 7th SEMESTER

Type of course: Engineering

Prerequisite: Basic Knowledge about Textiles

Rationale: CAD in Textiles will cover the fundamental principles of CAD/CAM and provide knowledge of CAD/CAM and their applications in various areas of Textiles.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks						Total Marks
L	T	P	C	Theory Marks			Practical Marks			
				ESE (E)	PA (M)		ESE (V)		PA (I)	
					PA	ALA	ESE	OEP		
2	0	2	4	70	20	10	20	10	20	150

Content:

Sr. No.	Content	Total Hrs	% Weightage
1	Introduction of Textile Design & Need & Advantages of CAD.	2	7.14
2	Hardware Components of CAD system.	10	35.71
3	The impact of Computer Graphics on Clothing Design.	1	3.57
4	Using CAD: Clothing & Textile System in industry.	1	3.57
5	Developments of Dobby / Jacquard Design using different available software packages. Features of different available software packages.	6	21.43
6	Practical utilization of CAD systems in the preparation, creation & processing of Designs for Textile Printing.	2	7.14
7	Practical utilization of CAD systems in the preparation, creation & processing of Embroidery Designs.	1	3.57
8	Marker Making Systems (Plotting, cutting operations, PDS –Pattern Design Software, Body measurement software), Texture mapping: 2 ½ and 3D draping software.	2	7.14
9	Latest Developments in the CAD system.	1	3.57
10	Application of CAM in various areas of Textiles. CAD-CAM Integration for textile Industry- Computer aided knitting - weaving and embroidery.	2	7.14

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
10	10	10	10	10	10

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books:

1. Computers in the World of Textiles:Papers presented at the annual world coference -Septmber 26-29,1984,Hong Kong.
2. Winfred Aldrich, CAD in Clothing & Textiles, Blackwell Science, 1994.
3. Veinsinet D O. Computer Aided Drafting & Design-Concept & Application, 1987

Course Outcome:

After learning the course the students should be able to:

1. Describe the need & advantages of CAD.
2. Describe the hardware components of CAD system.
3. Develop Dobby/Jacquard Designs using any CAD software package.
4. Develop Printed/Embroidery Designs using any CAD software package.
5. Develop Apparel Designs using any CAD software package.
6. Describe the applications of CAM in textiles.

List of Experiments:

1. Developing / Processing of Dobby Designs using Software.
    a. Description of different Tools of the software.
    b. Steps for creating and developing dobby designs.
    c. Development of Dobby Designs
    d. Fabric Simulation & Graphical Outputs.
2. Developing / Processing of Jacquard Designs using Software.
    a. Description of different Tools of the software.
    b. Steps for creating jacquard designs.
    c. Development of Jacquard Designs.
    d. Fabric Simulation & Graphical Outputs.
3. Developing / Processing of Printed Designs using Software.
    a. Description of different Tools of the software.
    b. Steps for creating printed designs.
    c. Development of Printed Designs
    d. Fabric Simulation & Graphical Outputs.
4. Developing / Processing of Embroidery Designs using Software.
    a. Description of different Tools of the software.
    b. Steps for creating embroidery designs.
    c. Development of Embroidery Designs.

5. Developing / Processing of Apparel Designs using Software.
    a. Description of different Tools of the software.
    b. Steps for Pattern Making & Laying, Marker Planning
    c. Development of Apparel Designs.
6. Study of Mapping Software & its application.

Design based Problems (DP)/Open Ended Problem: Apart from above experiments a group of students has to undertake one open ended problem/design problem. Few examples of the same are given below.

1. Production of one woven sample using jacquard
2. Production of one embroidered fabric sample
3. Production of one piece of garment

Major Equipment:

Computers with well supported textile designing softwares.

List of Open Source Software/learning website: http://nptel.iitm.ac.in, World Wide Web, Google Search Engine etc.

ACTIVE LEARNING ASSIGNMENTS: Preparation of power-point slides, which include videos, animations, pictures, graphics for better understanding theory and practical work – The faculty will allocate chapters/ parts of chapters to groups of students so that the entire syllabus to be covered. The power-point slides should be put up on the web-site of the College/ Institute, along with the names of the students of the group, the name of the faculty, Department and College on the first slide. The best three works should submit to GTU.