

GUJARAT TECHNOLOGICAL UNIVERSITY (GTU)**Competency-focused Outcome-based Green Curriculum-2021 (COGC-2021)**VIth – SemesterCourse Title: **Design Visualization (4365901)**

Diploma Programme in which this course is offered	Semester in which offered
Textile Designing	Sixth

1. RATIONALE

Design is the central part in Textile material as far as look has been concerned. When customer finally selects the textile consciously or subconsciously first they select the design of the textile. If everything is fine like fiber, yarn and fabric but design is not good it will be not accepted in to the market and vise a versa.

Every textile design is the output product of the fertile brain, means before it get executed in physical world first it get visualized in someone's mind. Every textile product is designed: that it is made specifically to some kind of plan. Design decisions are made at every stages in the manufacturing process – what fibres should be used in yarn, what yarn in a fabric, what weight of fabric should be produced, what colors should the yarn or fabric be produced in, what fabric structure should be used and what finished applied, These decisions may be made by engineers and technologist in the case of industrial or medical textiles where performance requirements are paramount, or, more often in the case of apparel, furnishing, and household textiles, by designers trained in aesthetics, technology and marketing. The designer found in the textile and clothing industries are frequently involved throughout the design process, from initial identification of a need/Requirements, through research, generation of initial design ideas, design development and testing to ultimate product specification.

2. COMPETENCY

The course content should be taught and implemented with the aim to develop different types of skills leading so that students are able to acquire following competency.

To Visualize and create new innovative design for Knitted, woven, Non-woven, Lace, carpet, print, paint, embroidery, stylists, repeat artist, colorist and developing various colourways.

3. COURSE OUTCOMES (COs)

The practical exercises, the underpinning knowledge and the relevant soft skills associated with this competency are to be developed in the student to display the following COs:

- a) Understand the process of Design visualization in context to fiber, yarn, fabric, garment and technical textile.
- b) Identify the scope of developing ideas and designs for textile designer.
- c) Apply concept of the textile design function.
- d) Appreciate the professional practices of design.

4. TEACHING AND EXAMINATION SCHEME

Teaching Scheme (In Hours)			Total Credits (CI+T/2+P/2)	Examination Scheme				
				Theory Marks		Practical Marks		Total Marks
L	T	P	C	CA	ESE	CA	ESE	
03	-	04	05	30	70	50	50	200

(*): Out of 30 marks under the theory CA, 10 marks are for assessment of the micro-project to facilitate integration of COs and the remaining 20 marks is the average of 2 tests to be taken during the semester for assessing the attainment of the cognitive domain UOs required for the attainment of the COs.

Legends: *L*-Lecture; *T* – Tutorial/Teacher Guided Theory Practice; *P* -Practical; *C* – Credit, *CA* - Continuous Assessment; *ESE* -End Semester Examination.

5. SUGGESTED PRACTICAL EXERCISES

The following practical outcomes (Pros) are the sub-components of the COs. These Pros need to be attained to achieve the Cos.

S. No.	Practical Outcomes (PrOs)	Unit No.	Approx. Hrs. required
1.	Make the list of different textile materials used for textile design making process.	1	04
2.	Make the list of different methods and techniques used for textile design making process.	1	04
3.	Make the collection of design for Bedroom, Bathroom and kitchen theme.	2	04
4.	Make the collection of design for Living room, office, festival theme and nursery theme.	3	04
5.	Make the co-ordinate design for Bedroom, Bathroom and kitchen theme.	3	04
6.	Make the co-ordinate design for Living room, office, festival theme and nursery theme.	3	04
7.	Make the design repeat for simple, step, counter change repeat.	4	04
8.	Make the design repeat for brick, drop and mirror repeat.	4	04
9.	Make the design layout for random and stripe layout.	4	04

10.	Make the design layout for border and plaid layout.	4	04
11.	Make the design for Natural and organic texture.	5	04
12.	Make the design from the source of inspiration for designer.	2	04
13.	Make sample Gantt chart for a textile design projects.	5	04
14.	Make list of Do's and Don'ts for professional design practices.	5	04
			56

Note

- i. More **Practical Exercises** can be designed and offered by the respective course teacher to develop the industry relevant skills/outcomes to match the COs. The above table is only a suggestive list.
- ii. The following are some **sample** 'Process' and 'Product' related skills (more may be added/deleted depending on the course) that occur in the above listed **Practical Exercises** of this course required which are embedded in the COs and ultimately the competency..

S. No.	Sample Performance Indicators for the PrOs	Weightage in %
1	Students' understanding and mastery indifferent type of textile material, design techniques and their uses to make textile design.	20
2	Implementation of various techniques used to produce different type of textile design for fiber, yarn, fabric, and garment and value addition to textile.	20
3	Willingness and attitude to complete different assignment	10
4	Initiative regarding innovative way to complete the assignment	20
5	Overall preparedness and progress during the assignment.	30
Total		100

6. MAJOR EQUIPMENT/ INSTRUMENTS AND SOFTWARE REQUIRED

These major equipment with broad specifications for the Pros is a guide to procure them by the administrators to usher in uniformity of practical in all institutions across the state.

S. No.	Equipment and Tool Name with Broad Specifications	PrO. No.
1	Needles of different sizes	3,4,5,6,7,8
2	Scissors and cutter	3,5,9,11,12
3	Wooden hand loom	3,4,6
4	Metallic rods different sizes	3,4,5,6,7,9,11
5	Wooden frame (Khatli)	5,6,7,8,9,10,11
6	Wooden and metallic ring	3
7	Sewing machine	5,10,11,12
8	Computer, Scanner and Printer	3,4,5,6,7,8,9,10,11,12
9	Mud, gum, stencil paper, and resist pate.	4,5,7,13,14

10	Different size of brushes and papers	1,2,3,4,5,6,7,8,9,10, 11,12,13
11	Card board, clip , pin	1,2,3,4,5,6,7,8,9,10, 11,12,13,14

7. AFFECTIVE DOMAIN OUTCOMES

The following *sample* Affective Domain Outcomes (ADOs) are embedded in many of the above mentioned COs and Pros More could be added to fulfil the development of this course competency.

- Follow safety practices.
- Practice good housekeeping.
- Demonstrate working as a leader/a team member.
- Maintain tools and equipment
- Follow ethical practices.

The ADOs are best developed through the laboratory/field based exercises. Moreover, the level of achievement of the ADOs according to Krathwohl's 'Affective Domain Taxonomy' should gradually increase as planned below:

- 'Valuing Level' in 1st year
- 'Organization Level' in 2nd year.
- 'Characterization Level' in 3rd year.

8. UNDERPINNING THEORY

The major underpinning theory is given below based on the higher level UOs of *Revised Bloom's taxonomy* reformulated for development of the COs and competency. If required, more such UOs could be included by the course teacher to focus on attainment of Co's and competency.

Note: The Unit Outcomes (UOs) need to be formulated at different level of Revised Bloom's Taxonomy' to accelerate the attainment of the COs and the competency.

Unit	Unit Outcomes (UOs) (4 to 6 UOs at different levels)	Topics and Sub-topics
Unit I An overview of textiles and textile design from fibre to product purchase	1a. Define design visualization for textile. 1b. Describe different types of textile Materials. 1c. Explain use of different Textile Materials. 1d. Use different types of fabric for garment making.	1.1 The global textile and design in textile industries. 1.2 Textile materials, processes and products. 1.3 Designers found in the textiles and clothing industries.
Unit II Principle and elements of textile design	2a. Introduction to textile design principle 2b. Explain design principle and elements 2c. Inspiration for textile designers.	1.1 History of design visualization practices in textile. 1.2 Balance, Movement, Layout, Grids, Repetition, contrast and unity in designs. 1.3 Different types of line, shape, and form in textile design. 1.4 Color, color mixing, color style color psychology, hue value, Chroma, textures and weave.

Unit	Unit Outcomes (UOs) (4 to 6 UOs at different levels)	Topics and Sub-topics
		1.5 History, story, architecture both natural and manmade objects.
Unit III Textile materials and methods.	3a. Explain different design techniques for yarn, Woven, knitted and embroidery textile. 3.b Explain different design techniques for Printing and painted textiles. 3c. Explain different design techniques for Non-woven, lace and technical textiles.	3.1 Uses of different fibre for yarn manufacturing. 3.2 Combination weave, colour, yarn selection fabric specifications and fabric finishing. 3.3 Yarn, Knit structure and sewing for garment. 3.4 Different yarn, colour and colour combination ,Needle and motifs for embroidery 3.5 Motifs, color theme, different techniques for printing and painting textiles. 3.6 Different non-woven textiles, Laces and Technical textile design methods.
Unit IV Textile designer and the textile design functions	4a. The diversity of textile design and textile designers. According to their uses in textiles. 4b. Timing in the textile and clothing industries. 4c. Printed and constructed textiles.	4.1 The purpose of the textile designer. 4.2 Stylist, colorist and repeat artist. 4.3 In-house and freelance designs. 4.3 Seasonal ranges for textile manufacturing. 4.5 From sketchbook to fabric sample. 4.6 Design adaption and modification.
Unit V Professional practices and commercial aspects of design	5a. Getting design job. 5b. A model for design administration. 5c.The initial meeting and briefing. 5d.Different types of fees. 5e. Different textile design professional bodies.	5.1Advertising for textile designers. 5.2 Goslett's model for design administration. 5.3 Do's and Don'ts for meeting. 5.4 Different types of fees. 5.5 Function of professional bodies

9. SUGGESTED SPECIFICATION TABLE FOR QUESTION PAPER DESIGN

Unit No.	Unit Title	Teaching Hours	Distribution of Theory Marks			
			R Level	U Level	A Level	Total Marks
I	An overview of textiles and textile design from fibre to product purchase	05	06	02	00	08
II	Principle and elements of textile design	08	04	06	08	18
III	Textile materials and methods.	10	04	04	06	14
IV	Textile designer and the textile design functions	12	04	04	06	14
V	Professional practices and commercial aspects of design	07	04	04	08	16

		42	22	20	28	70
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Legends: R=Remember, U=Understand, A=Apply and above (Revised Bloom's taxonomy)

Note: This specification table provides general guidelines to assist students for their learning and to teachers to teach and question paper designers/setters to formulate test items/questions to assess the attainment of the UOs. The actual distribution of marks at different taxonomy levels (of R, U and A) in the question paper may slightly vary from above table.

10. SUGGESTED STUDENT ACTIVITIES

Other than the classroom and laboratory learning, following are the suggested student-related **co-curricular** activities which can be undertaken to accelerate the attainment of the various outcomes in this course: Students should perform following activities in group and prepare reports of about 5 pages for each activity. They should also collect/record physical evidences for their (student's) portfolio which may be useful for their placement interviews:

- Visit traditional textile manufacturing unit / boutique and professional design studios.
- Undertake micro-projects of making various textile design making process.
- Develop new products by collaboration with industry, Rural Artist and professional designers.
- Visit various fashion show, Mela, exhibitions, gallery, big textile house and showrooms and make a report and documentary for the same

11. SUGGESTED SPECIAL INSTRUCTIONAL STRATEGIES (if any)

These are sample strategies, which the teacher can use to accelerate the attainment of the various outcomes in this course:

- Massive open online courses (**MOOCs**) may be used to teach various topics/sub topics.
- Guide student(s) to take micro-projects.
- Blend the basic concepts with more specialized instruction
- Visualization, Cooperative Learning, inquiry based instruction, differentiation, effective use of technology, think-pair and share etc. pedagogies can be implemented as per the enlisted course outcomes.
- Give at least 10 competitive problems for each course outcomes of this course
- Practice, practice and practice - expose students to wide range of problems
- About **20% of the traditional textile articles should be made by** students for **self-learning**, but to be assessed using different assessment methods.
- Using the natural resources and create new traditional textile. Also motivate the students for the self-enterprise (Own small start-up) which help to generate employability.
- Guide students on how to address issues on environment and sustainability using the knowledge of this course

12. SUGGESTED MICRO-PROJECTS

Only one micro-project is planned to be undertaken by a student that needs to be assigned to him/her in the beginning of the semester. In the first four semesters, the micro-project are group-based (group of 3 to 5). However, **in the fifth and sixth semesters**, the number of students in the group should **not exceed three**.

The micro-project could be industry application based, internet-based, workshop-based, laboratory-based or field-based. Each micro-project should encompass two or more COs which are in fact, an integration of PrOs, UOs and ADOs. Each student will have to maintain dated work diary consisting of individual contribution in the project work and give a seminar presentation of it before submission. The duration of the micro-project should be about **14-16 (fourteen to sixteen) student engagement hours** during the course. The students ought to submit micro-project by the end of the semester to develop the industry-oriented COs.

A suggestive list of micro-projects is given here. This has to match the competency and the COs. Similar micro-projects could be added by the concerned course teacher:

Suggested List of Micro-Project.

1. New product development by using different textile material, color and design concepts.
2. Arrange an exhibition for the traditional textile to motivate the people for purchase.
3. Arrange fashion show to show own make design garments and textile products.
4. Do the market research for new product development for concept of Local for vocal.
5. Collect the different samples from different textile industries.

13. SUGGESTED LEARNING RESOURCES

S. No.	Title of Book	Author	Publication with place, year and ISBN
1	Handbook of textile Design	Jacque Wilson	Woodhead Publication ISBN : 1 85573 573 3
2	Decorative Design and Craftsmanship of India with over 10,000 design and motifs From the craft of India	Kamala Devi Chattopadhyay	KalyaniPublishers ,2008 ISBN:9788127244149
3	Oriental carpet design (A guide to traditional motifs, patterns and symbols)	P.R.J. Ford	Thames and Hudson-1992, ISBN:9780500276648
3	Embroidered Textiles (Traditional pattern from five continents)	Sheila Paine	Thames and Hudson-1990, ISBN:9780500235973
4	Stenciling made easy (A complete beginner's guide)	Joanna sheen	Haldane mason, London-1995 ISBN:0-7525-1087-8
5	Ikat textiles of India	Chelna Desai	Chrpnicle india, California ISBN : 0-87701-548-1
6	Studies in Indian Textiles	V. Suguna Sarma	Bharatiya Kala Prakashan

			81-86050-13-2
7	5000 Years of Textiles	Jennifer Harris	British museum, London ISBN : 0-7141-1715-3
08	Indian Painted and printed fabrics	John Irwin & Margaret Hall	Vakil & sons private limited
09	Embroidered Textiles	Sheila Paine	Thames and Hudson 0-500-23597-X
10	Tie-dyed textiles of india	Veronica murphy and rosemary crill	Victoria and albert museum in association with Mapin publishing Pvt. Ltd
11	Materpieces of Indian Textiles	Rustam J. Mehta	D.B. Taraporewala sons & co. Private ltd.
12	Indian Pigment Paintings on Cloth	Kay talwar & Kalyn Krishna	Vakil & sons Limited
13	Inventing weaving on little loom	Syne mitchell	Sturey publishing LLC November-2015 ISBN: 978-1-30642-9726
14	Watson's Textile Design and Colour	Z Grosicki	Universal publication corporation Bombay ISBN : 81-85027-11-0
15	The pattern base: Over 550 contempory textile and surface designs	-	Thames and Hudson SBN : 10-0500291799

14. SUGGESTED LEARNING WEBSITES

- a) <https://medium.com>
- b) <https://textilevaluechain.in>
- c) <https://www.textilesphere.com>
- d) <https://textilesfindia.in>
- e) <https://dsourc.in>
- f) <https://www.fibre2fashion.com>
- g) <https://www.tourmyindia.com>
- h) <https://dsourc.in>
- i) <https://www.youtube.com/watch?v=UFWvabZoaRo>
- j) <https://www.youtube.com/watch?v=9HhgZPUseBk>
- k) <https://www.youtube.com/watch?v=IRhGF3DT3EY>
- l) <https://www.youtube.com/watch?v=7qm5YXuL4M8>
- m) <https://www.youtube.com/watch?v=4MV200Bq82c>
- n) <https://www.youtube.com/watch?v=zX4bjr16I6E>

15. PO-COMPETENCY-CO MAPPING

Semester:-6 th	Design Visualization						
	POs						
Competency & Course Outcomes	PO 1 Basic & Discipline specific knowledge	PO 2 Problem Analysis	PO 3 Design/ development of solutions	PO 4 Engineering Tools, Experiment-Tation&Testing	PO 5 Engineering practices for society, sustainability & environment	PO 6 Project Management	PO 7 Life-long learning
To Visualize and create new innovative design for Knitted, woven, Non-woven, Lace, carpet, print, paint, embroidery, stylists, repeat artist, colorist and developing colourways.							
<u>Course Outcomes</u>							
CO a)	3	1	1	-	1	-	2
CO b)	2	2	2	1	2	1	3
CO c)	1	3	3	3	2	2	3
CO d)	3	3	3	2	3	1	3

Legend: '3' for high, '2' for medium, '1' for low and '-' for no correlation of each CO with PO.

16. COURSE CURRICULUM DEVELOPMENT COMMITTEE

GTU Resource Persons

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