GUJARAT TECHNOLOGICAL UNIVERSITY (GTU)
Competency-focused Outcome-based Green Curriculum-2021 (COGC-2021)
6th – Semester

Course Title: **Garment Technology for Fashion Designers**
(Course Code: 4365902)

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

1. RATIONALE

Garment technology plays a crucial role in the fashion industry, supporting fashion designers in various aspects of the design and production process. Garment creation is a technical accomplishment that necessitates knowledge and skills in basic sewing techniques such as the application of stitches, seams, darts, gathers, pleats, and edge finishing, among others. Its proper application in garment production is required for a high-quality product. Garment construction involves both technical and design difficulties, and the designer can select where to place them.

2. COMPETENCY

The purpose of this course is to help the student to attain the following industry identified competency through various teaching learning experiences.

Design the well-constructed, functional, and aesthetically pleasing garments using appropriate seams, stitches, supporting accessories and finishes.

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 garments construction along with drafting, cutting and sewing in industry.
b) Develop work proficiently on the sewing machine & Stitch different seams.
c) Plan the production schedule of a garment as per the delivery date of an order.
d) Create new designs with basic garments and develop designer costumes with cost estimation.

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	
3	-	4	5	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.*TheasePrOs need to be attained to achieve the Cos.*

Sr. No.	Practical Outcomes (PrOs)	Unit No.	Approx. Hrs. required
1.	Draw and demonstrate the sewing machine and its important parts.	I	04
2.	Create Basic hand stitches on fabric e.g. basting, hemming, slant, slip, invisible, back stitch even back, half back, prick	I	04
3.	Create Stitches on fabric using sewing machine e.g. Straight stitch, stem stitch, zigzag stitch, overcastting stitch, blind hem stitch, satin stitch, couching stitch, feather stitch, etc.	I	04
4.	Construct various seams e.g. plain seam, French seam, flat fell, lapped, stitched & pinked seam, Turned & Construct straight, angular and curved seams.	V	04
5.	Cut various parts of garments and apply fusing on appropriate parts.	II	04
6.	Assemble a Top/Bodice parts of a garment	V	04
7.	Fabric Consumption and Cost Estimation	III	04
8.	Construct an Indian traditional female garment e.g. Sari Blouse, Choli Blouse, Chaniya choli, etc.	V	04
9.	Construct a female formal/ casual garment e.g. Dress, Top, Skirt, Trouser, Shirt, Salwar, Kameez, Kurti, Churidar Kurta, Kalidar Kurta etc.	V	04
10.	Construct a bridal garment e.g. traditional wears, theme based wears, designer wears, etc.	V	04
11.	Construct a party wear garment for male/female	V	04
12.	Construct a male formal/ casual garment e.g. shirt, jacket, trouser, pant, jeans, trousers, suit, shirt, blazer etc.	V	04

13.	Construct a kids / toddlers garment e.g. dress, frock, jeans, hoodies, etc.	V	04
14.	Construct your own designer garment.	V	04
	Total		**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 in different type of Sewing & stitching machines.	20
2	Implementation of various techniques used to create different type of Garments.	20
3	Willingness and attitude to complete different assignments.	10
4	Initiative regarding innovative way to complete the assignments.	20
5	Overall preparedness and progress during the assignments.	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 Name with Broad Specifications	PrO. No.
1	Fabrics of different verities as per their applications in garments	1 to 14
2	Stitching Machine and supporting tools e.g. needles, Threads, bobbins, etc.	1 to 14
3	Scissors, Shears , Tailors Chalk	1 to 14
4	Various tailoring scales and measurement tape	1 to 14
5	Steam iron, Electric blower, Vacuum machine	1 to 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.

a) Follow safety practices.
b) Practice good housekeeping.
c) Demonstrate working as a leader/a team member.
d) Maintain tools and equipment

e) 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:

i. 'Valuing Level' in 1st year
ii. 'Organization Level' in 2nd year.
iii. '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* that are formulated for development of the COs and competency. If required, more such UOs could be included by the course teacher to focus on attainment of COs and competency.

Unit	Unit Outcomes (UOs) (4 to 6 UOs at different levels)	Topics and Sub-topics
Unit – I **Introduction to the Garment Industry**	1a. Understand the functions of Various Departments in a garment Industry 1b. Classify the different work to be done in the various Departments 1c. Understand the different tools & Parts in sewing machines 1d. Analyze different types of Feed in sewing machines	1.1 Departments in a garment Industry 1.2 Functions of departments in a garment Industry e.g. Merchandising Sampling, Fabric Sourcing, Purchasing Department, Fabric Inspection, Accessory Stores, Production Planning, Grading & Marker planning, , Cutting Section, Quality Assurance department 1.3 Types of sewing machines 1.4 Working of sewing machine 1.5 Tools & Parts of Sewing machine and types of needles 1.6 Maintenance & care of sewing machine 1.7 Feed types of Sewing machine
Unit – II **Spreading and Cutting**	2a. Understand the different fabric Properties to be spread, cut & sewn 2b. Understand the Spreading of textile materials 2c. Understand the Cutting of textile materials 2d. Understand the fusing process	2.1. Fabric properties - tailorability, buckling and formability & Sewability 2.2. Objectives of the Spreading Process 2.3. Types of Spreads 2.4. Objectives of Cutting 2.5. Methods of Cutting 2.6. Cut process planning 2.7. Fusing of cut textile components
Unit – III **Fabric Sourcing**	3a. Identify the need of Fabric sourcing for Garment Industry 3b. Understand the Production	3.1 Fabric sourcing 3.2 Fabric inspection 3.3 Future trends

Unit	Unit Outcomes (UOs) (4 to 6 UOs at different levels)	Topics and Sub-topics
and Cost estimations	planning in Garment Industry 3c. Understand the Production systems & Supply chain management 3d. Understand the Inventory management in Garment Industry	3.4 Production planning 3.5 Production systems 3.6 Waste management 3.7 Human resource management 3.8 Cost calculation of Garment
Unit– IV **Assembling & Finishing**	3a. Understand Garment Assembly Systems 3b. Understand Assembly Systems Used in India 3c. Understand Garment Finishing Machines 3d. Understand Button Machines	4.1 Classification of Garment Assembly Systems 4.2 Individual System 4.3 Factory Production System 4.4 Progressive Bundle System (PBS) 4.5 Lock-Stitch Machine 4.6 Chain-Stitch Machine 4.7 Over lock Machine 4.8 Buttonhole Machine
Unit– V **Designer's Garments**	5a. Understand Various Kinds of Plackets 5b. Understand Various Kinds of Pockets 5c. Understand Neckline Facings 5d. Understand Sleeve Attachment 5e. Understand Cuff Attachment & Yoke Attachment	5.1 Types of Placket 5.2 Types of Pocket 5.3 Preparation of Bias Strip 5.4 Collar Attachment 5.5 Sleeve Attachment 5.6 Cuff Attachment 5.6 Yoke Attachment

***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.*

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	Introduction to the Garment Industry	06	2	6	6	14
II	Spreading and Cutting	08	2	6	6	14
III	Fabric Sourcing and Cost estimations	08	2	6	6	14
IV	Assembling & Finishing	10	2	6	6	14
V	Designer's Garments	10	2	6	6	14
Total		**42**	**10**	**30**	**30**	**70**

***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:

a) Prepare specification of Any Fashion Garment
b) Undertake micro-projects in teams
c) Present seminar on development of Fashion Garment in a Apparel Industry
d) Visit any Apparel Industry and fashion boutique to understand the core concept production planning

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:

a) Massive open online courses (***MOOCs***) may be used to teach various topics/sub topics.
b) Guide student(s) to take micro-projects.
c) Blend the basic concepts with more specialized instruction
d) 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.
e) Give at least 10 competitive problems for each course outcomes of this course
f) Practice, practice and practice - expose students to wide range of problems
g) About ***20% of the topics/sub-topics*** which are relatively simpler or descriptive in nature is to be given to the students for ***self-learning***, but to be assessed using different assessment methods.
h) With respect to ***section No.10***, teachers need to ensure to create opportunities and provisions for ***co-curricular activities***.
i) 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. Visit to a Garment Factory/ Apparel Industry / Fashion boutique
2. Identify Various Machine for garment manufacturing
3. Closely Observe working of Each Machine
4. Calculate the requirements of fabric & accessories required to make a garment
5. Check the time taken for moving a garment from one machine to another machine

13. SUGGESTED LEARNING RESOURCES

S. No.	Title of Book	Author	Publication with place, year and ISBN
1	Garment Manufacturing Technology	Rajkishore Nayak, Rajiv Padhye	Woodhead Publishing ,2015 ISBN :- 9781782422327
2	Garment Manufacturing Technology	Dr. N. Gokarneshan	Abhishek Publications ,2021 ISBN :- 9788182476875
3	Cooklin's Garment Technology for Fashion Designers	Steve Hayes, John McLoughlin Dorothy Fairclough	Wiley Publication ,2012 ISBN : 9781405199742
4	Guide to Basic Garment Assembly For The Fashion Industry	Jayne Smith	Wiley-Black Well Publication ,2012 ISBN : -9781405198882
5	Advanced Garment Construction	Business Reference Guide	Woodhead publishing ,2020 ISBN-13 : 9788193644645
6	Garment Construction	Edna M. Callahan Edith A. Berry	Wildside Press ,2008 ISBN-13 : 9781434478160

14. SUGGESTED LEARNING WEBSITES

a) https://www.idi.co.in/garment-construction-techniques/
b) https://littlestitchstudionorfolk.com/blog/2020/11/4/rjhi7cngipr30zmaaoslznls7li3ma
c) https://www.deskera.com/blog/what-is-garment-manufacturing/
d) https://www.textileschool.com/193/garment-production-process/
e) https://ordnur.com/garments-2/list-of-machinery-and-their-functions-of-apparel-industry/
f) https://www.garmentexporthouse.com/2021/10/list-of-machines-and-equipment-used-in.html
g) https://garmentsmerchandising.com/garment-machine-function/

15. PO-COMPETENCY-CO MAPPING

Semester 6th	Fashion studies & Merchandising (Course Code:4365904)						
	POs						
Competency & Course Outcomes	**PO 1 Basic & Discipline specific knowledge**	**PO 2 Problem Analysis**	**PO 3 Design/ develop-ment of solutions**	**PO 4 Engineering Tools, Experimen-Tation &Testing**	**PO 5 Engineering practices for society, sustainability & environment**	**PO 6 Project Manage-ment**	**PO 7 Life-long learning**
Design the well-constructed, functional, and aesthetically pleasing garments using appropriate seams, stitches, supporting accessories and finishes.							
Course Outcomes CO a)	3	1	2	2	1	2	3
CO b)	3	2	2	2	1	2	3
CO c)	3	2	2	2	1	2	3
CO d)	3	2	3	2	2	3	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

Sr. No.	Name and Designation	Institute	Contact No.	Email
1.	Mr. S B Goswami, Lecturer	GPG Surat	9377568889	goswami.shailesh@gmail.com
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