GUJARAT TECHNOLOGICAL UNIVERSITY (GTU)

Competency-focused Outcome-based Green Curriculum-2021 (COGC-2021)

Semester - IV

Course Title: Industrial Management of Textile Processing Industries

(Course Code: 4362801)

Diploma program in which this course is offered	Semester in which offered
Textile Processing Technology	Sixth

1. RATIONALE

The polytechnic graduates are required to supervise operations of textile dyeing and printing processes in industry. They should have basic knowledge and skills to manage dyeing and printing processes as well workers. This course provides the knowledge regarding basic industrial management in wet processing industries. It also provides the clear concept of production planning and control related to various wet processes and their cost calculation.

2. COMPETENCY

The course content should be taught and implemented with the aim to develop different types of managerial skills leading to the achievement of the competency, "**Manage operations in textile processing industry ethically using management principles, cost control, marketing and socially acceptable practices."**

3. COURSE OUTCOMES (COs)

The practical exercises, the underpinning knowledge and the relevant soft skills associated with the identified competency are to be developed in the student for the achievement of the following COs:

a) Apply management concepts in day to day professional life.
b) Apply production planning control for various wet processes.
c) Calculate various processing costs and accordingly plan production.
d) Use relevant marketing and sales channels for business growth.
e) Emphasis on training and development programs for personal & professional development.

4. TEACHING AND EXAMINATION SCHEME

Teaching Scheme (In Hours)			Total Credits (L+T+P/2)	Examination Scheme				
				Theory Marks		Practical Marks		Total Marks
L	T	P	C	CA	ESE	CA	ESE	
3	0	0	3	30*	70	0	0	100

(*): 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 the 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

----------Not Applicable----------

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 higher level Uos could be included by the course teacher to focus on attainment of Cos and competency.

Unit	Unit Outcomes	Topics and Sub-topics
Unit – I Management in Textile Wet Processing Industry	1a. Describe Salient Features of Industrial Management 1b. Describe Organization Structure in Textile Industry 1c. Describe plant layout and site selection for wet processing industry 1d. Identify Supply Chain and Logistics and its management	1.1 Definitions and Functions of Management 1.2 Classification of Management 1.3 Concept of Scientific management 1.4 Features of textile management 1.5 Objectives and Types of Organization 1.6 Organization Structure of Textile Industry 1.7 Plant lay out and site selection for wet processing industry 1.8 Concept of Logistics and Supply Chain Management 1.9 Simplified flow diagram of textile supply chain
Unit– II Production Planning & Control	2a. Explain Production Management 2b. Describe Production Planning & Control its Impact 2c. Describe Material Management & Material Handling 2d. Describe Inventory Management & Inventory Control 2e. Describe Role of Laboratory in Production Management 2f. Implement Concept of RFT	2.1 Production management & various Methods of production 2.2 Concept of Production planning and control and its objectives 2.3 Techniques of Production Planning & Control 2.4 Concept of Material Management 2.5 Functions & Objectives of Material Management 2.6 Principles of Material Handling, Flow Patterns for Material Handling 2.7 Concept of Inventory Management 2.8 Objectives & Essential Elements of Inventory Control 2.9 ABC Technique of Inventory Control 2.10 Importance of Lab Dips in PPC & Role of Merchandisers in Lab Dip Coordination 2.11 Phenomenon to achieve Right First Time
Unit– III Cost Control & Cost Accounting	3a. Explain Theory of Costing 3b. Differentiate between profit and profitability 3c. Understand Various terminologies in Costing 3d. Evaluation of Costs in Textile Wet Processing	3.1 Cost & Accounting 3.2 Objectives and Elements of Cost 3.3 Nature and Type of Cost 3.4 Concept of Profit & Profitability 3.5 Cost Control & Cost Reduction 3.6 Break Even Analysis, Depreciation and obsolescence 3.7 Cost Calculation in Pretreatment, Dyeing, Printing, Finishing for Materials and Energy
Unit – IV Marketing & Merchandising	4a. Describe Importance of Marketing & Sales 4b. Describe Marketing Strategy & Marketing Channel 4c. Describe Elements of Promotion 4d. Differentiate marketing	4.1 Definitions and Functions of Marketing & Sales Management 4.2 Marketing Strategies & Different Marketing Channels 4.3 Different Elements of Promotion 4.4 Importance of Advertisement 4.5 Difference between marketing and merchandising

	and merchandising 4e. Define Service Marketing and different models	4.6 Concept of Brand & Visual Merchandising 4.7 Concept of Retailing and Merchandising 4.8 Role of Marketing, Sales and Merchandising Manager 4.9 Concept of Service Marketing 4.10 Difference between goods and services 4.11 Service Marketing Triangle 4.12 The SERVQUAL Model
Unit – V Training & Development	5a. Understand Textile Engineering concepts 5b. Define Need for trained technical staff 5c. Identify Control points and check points for supervisory functions 5d. Implement Lean Management System	5.1 Concept of Engineering – Engineer & Good Engineer 5.2 Roles and Responsibilities of Textile Engineer in Textile Industry 5.3 Designation for Textile Engineer in Textile Industry 5.4 Objectives & Benefits of Training – Quality Staff – key to Excellence 5.5 Functions of Training Department 5.6 Roles and Responsibilities of Supervisor 5.7 Supervisor as Leader 5.8 Principles & Tools of Lean Management

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	Management in Textile Wet Processing Industry	06	2	4	4	10
II	Production Planning & Control	12	5	10	5	20
III	Cost Control & Cost Accounting	08	4	6	4	14
IV	Marketing & Merchandising	10	4	6	6	16
V	Training & Development	06	2	4	4	10
Total		**42**	**17**	**30**	**23**	**70**

Legends: *R=Remember, U=Understand, A=Apply and above (Revised Bloom's taxonomy)*

Note*: This specification table provides general guidelines to assist student for their learning and to teachers to teach and question paper designers/setters to formulate test items/questions 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 vary slightly 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 conduct following activities in group and prepare reports of about 5 pages for each activity, also collect/record physical evidences for their (student's) portfolio which will be useful for their placement interviews:

Following is the proposed list of student's activities like:

1. Collect data on various costs in wet processing textile industries.
2. Collect information on marketing strategies to enhance market share.
3. Collect information on industry adherence on social laws.
4. Literature survey of management for Textile Wet Processing Industries.
5. Visit to textile industries to study the management system and prepare reports.
6. Group discussion on importance and needs of management in textile wet processing industries.
7. Collect data related to management system of various textiles wet processing industries and prepare Power Point Presentation.

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:

1. Massive open online courses (***MOOCs***) may be used to teach various topics/sub topics.
2. Guide student(s) in undertaking micro-projects.
3. ***'L' in section No. 4*** means different types of teaching methods that are to be employed by teachers to develop the outcomes.
4. 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.
5. With respect to ***section No.10***, teachers need to ensure to create opportunities and provisions for ***co-curricular activities***.
6. Encourage students to refer different websites for having a deeper understanding of the subject.
7. Assign unit wise assignment to group of 4 to 5 students.
8. Use of video, animations, to explain concepts, facts and application related to printing.

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 is 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:

a) **Data sheet:** Prepare a data sheet for various dyeing processes with recipes and dyeing conditions and costs.
b) **Management survey:** Collect the data of management system in textile industries.
c) **Cost Calculation:** Calculate the cost of dyeing with respect to price of dyes and chemicals of any two dyeing methods for polyester.
d) **Training Modules:** List different training modules to increase work efficiency and balanced work life and prepare presentation on it.
e) **Online/Offline:** Collect different promotional activity data related to textile industries and evaluate them.
f) **RFT Concept:** Collect Lab to Bulk activity samples from industry and study and evaluate them.

13. SUGGESTED LEARNING RESOURCES

No.	Title of Book	Author	Publication with place, year and ISBN
1	Industrial Organization and Engineering Economics	T. R. Banga and S. G. Sharma	Khanna Publisher, New Delhi, Latest Publication
2	Management of Textile Industry	V. D. Dudeja	Textile Trade Press, Ahmedabad. Latest Publication
3	Training and Development of Technical Staff in Textile Industry	B. Purushothama	Woodhead Publishing India Pvt Ltd
4	Pollution Control And Human Resource Management In Textile Industries	Jitendra Kumar	Pankaj Publication International
5	Industrial Engineering and Management	Praveen Kumar	Pearson India Education Services Pvt Ltd
6	Science And Technology of Textile Dyeing And Colouration	S P Mishra	New Age International Publishers

14. SOFTWARE/LEARNING WEBSITES

a) www.fibre2fashinon.com
b) www.textilelearner.net
c) www.textiletutorials.com
d) www.textilefashionstudy.com
e) www.textileschool.com
f) www.textileassociationindia.org
g) https://textilechemrose.blogspot.com
h) https://fashion2apparel.com/
i) https://textileengineering.net/
j) https://www.advancetextile.net/
k) https://www.textiletoday.com.bd/top-bottom-rft-dyeing
l) http://dyeingworld1.blogspot.com/2009/12/right-first-time-dyeing.html
m) https://www.textileflowchart.com/

15. PO-COMPETENCY-CO MAPPING

Semester VI	**Industrial Management of Wet Processing Industries – 4362801**						
	Pos						
	PO 1 Basic & Discipline specific knowledge	PO 2 Problem Analysis	PO 3 Design/ development of solutions	PO 4 Engineering Tools, Experimentation &Testing	PO 5 Engineering practices for society, sustainability & environment	PO 6 Project Management	PO 7 Life-long learning
Competency & Course Outcomes	"**Manage operations in textile processing industry ethically using management principles, cost control, marketing and socially acceptable practices."**						
Apply management concepts in day to day professional life.	3	1	2	2	--	1	3
Apply production planning control for various wet processes.	3	3	3	1	--	3	3
Calculate various processing costs and accordingly plan production.	3	3	3	2	--	3	3
Use relevant marketing and sales channels for business growth.	3	3	3	2	--	3	3
Emphasis on training and development programs for personal & professional development.	3	3	3	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

No.	Name and Designation	Institute	Contact No.	Email Address
1)	Mr. P. D. Panwala Lecturer	Dr. S. & S. S. Ghandhy College of Engineering & Technology, Surat	7228864435	pavan.panwala@hotmail.com
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