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 Website: www.vjti.ac.in

Programme: Diploma in Textile Manufacture (DTM)

Semester: VI

Implemented from: 2017

COURSE CODE	COURSE	GR	TEACHING SCHEME (HRS/WK)				EXAMINATION SCHEME												
			L	T	P	CR	PAPER HRS	TH		IST	TOTAL		PR*		OR*		TW		TOTAL MARKS
								Max	Min		Max	Min	Max	Min	Max	Min	Max	Min	
176TM61	Garment Technology	C	3	-	3	6	3	80	32	20	100	40	50	20	-	-	50	20	200
176TM62	Textile Mill Planning , Organization and Costing	C	3	1	-	4	3	80	32	20	100	40	-	-	-	-	50	20	150
176TM63	Textile Testing II	C	4	-	3	7	3	80	32	20	100	40	50	20	-	-	50	20	200
176TM64	Manmade fiber production and processing	C	3	-	-	3	3	80	32	20	100	40	-	-	-	-	-	-	100
176TM65E	Elective- II (Any One)	C	3	-	-	3	3	80	32	20	100	40	-	-	-	-	-	-	100
176TM66	Technical skills	M	-	-	2	2	-	-	-	-	-	-	-	-	50	20	50	20	100
176TM67	Project	A	-	-	6	6	-	-	-	-	-	-	-	-	50	20	100	20	150
	TOTAL		16	1	14	31	-	400	-	100	500	-	100	-	100	-	300	-	1000

Abbreviations: B – Basic; C – Core; A – Applied; M – Management; L – Theory Lecture; T – Tutorial; P – Practical; TH – Theory Paper; MST – Mid-Semester Tests; PR – Practical Exam; OR – Oral Exam; TW- Term Work.


Student Contact Hours per week (Formal Teaching): 31 Hours.


Theory, Practical and Tutorial periods are of 60 minutes duration.


Total Marks 1000

* Indicates assessment by External Examiner.



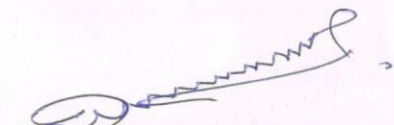

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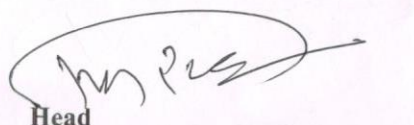

 Head
 Diploma in Textile Manufacture


 Dean - Diploma


List of Third Year Elective Subjects

SR. NO.	SUBJECT CODE	SUBJECT TITLE
1	176TM56E1	Marketing Management
2	176TM56E2	Maintenance management
3	176TM56E3	Industrial Textiles
4	176TM65E4	Apparel Merchandising
5	176TM65E5	Long Staple Spinning and Weaving
6	176TM65E6	Textronics
7	176TM65E7	Entrepreneurship Development
8	176TM65E8	Nanotechnology & Composites
9	176TM65E9	Industrial Engineering
10	176TM65E10	Textile Design & Colour


Curriculum Coordinator

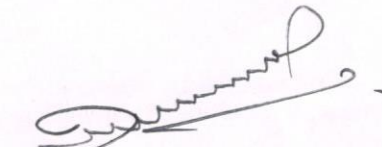

Head
Diploma in Textile Manufacture

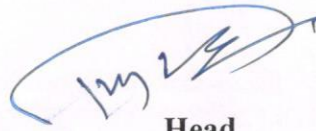




Dean - Diploma

List of Third Year Elective Subjects

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9	176TM56E9 / 176TM65E9	Industrial Engineering
10	176TM56E10 / 176TM65E10	Textile Design & Colour


Curriculum Coordinator


Head
Diploma in Textile Manufacture


Dean - Diploma

DIPLOMA PROGRAMME	DIPLOMA IN TEXTILE MANUFACTURES
PROGRAMME CODE	DTM
SEMESTER	SIXTH
COURSE TITLE	GARMENT TECHNOLOGY
COURSE CODE	176TM61

TEACHING AND EXAMINATION SCHEME:

TEACHING SCHEME				EXAMINATION SCHEME												
L	T	P	CR	PAPER HRS	TH		IST	TOTAL		PR		OR		TW		TOTAL MARKS
					Max	Min		Max	Min	Max	Min	Max	Min			
3	0	3	6	3	80	32	20	100	40	50	20	-	-	50	20	200

Rationale: With increasing demand of readymade garments the need for personnel in the garment industry is increasing day by day. The subject garment technology is therefore included and it is kept in V semester. This would give the students necessary knowledge for working in garment industry. In this subject important areas like merchandising are dealt with in good details. This will help the students may perhaps enable the students to go for self-employment.

Course Objective: To impart knowledge of conversion of fabrics into garment

Course Outcomes:

After completing this course, Student should be able to

CO1	Give overview of garment industry and describe the process sequence for converting fabric into garment
CO2	Describe spreading and cutting of fabric for garment manufacturing
CO3	Demonstrate the sewing machines working and the various stitching parameters and seam types
CO4	Know the advance techniques of joining materials other than sewing method.
CO5	Identify the inventory requirements for garments





CO6	Demonstrate the various fabric and garment inspection systems
CO7	Make marker plan, spreading and cutting and sewing
CO8	Draw basic croquis, demonstrate the application of garment Rich piece software

Course Content:

Section-I

Topics/Sub-topics		Hours	Marks	CO	R Level	U Level	A Level
1	Garment Manufacturing : Introduction to Indian apparel industry. Garment production process Sequence	2	4	CO1	40%	40%	20%
2	Pattern making: Introduction to pattern making and garment Construction. Different terminologies. Drafting, Basic bodies blocks, Muslin pattern. Commercial pattern, Methods of making basic pattern, grading of pattern, size, size charts	8	16	CO1	20%	40%	60%
3	Spreading and cutting : Spreading and Workroom situation-stages from raw material to final Cutting garment. Methods of spreading, Spreading equipments – Computerized spreaders – Marker making –Marker efficiency – Factors affecting marker efficiency – Marker duplicating methods – Computer aided marker making. Garment Cutting: Introduction to cutting room processes and machines Types and functions of cutting machines – straight knife, round knife,band knife, cutting machines – Notches, drills, die cutting machines – Computerized cutting machines common defects in cutting & their remedies	14	20	CO2	20%	20%	60%

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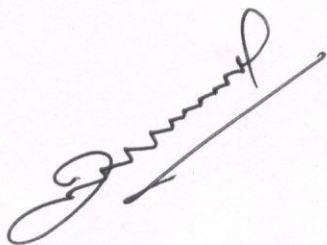
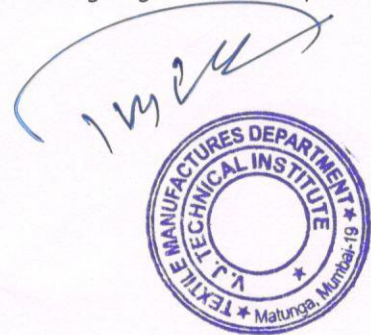
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Section -II

	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
4	Garment Sewing: Introduction to sewing m/c and its parts, Different types of sewing m/c and its suitability, Sewing Properties of seams, Seams types, stitch types, Sewing Machine Feed Mechanisms, Sewing Machine needle, Sewing thread, Thread properties and seam performance, Sewing problems, Thread packages, Testing for sewability and tailorability. Thread calculation and its consumption	10	14	CO3	20%	20%	60%
5	Pressing & fusing Technology : Pressing and its Classification, Construction of Fusibles, Types of fusing in garments, Fusing processes, defects during fusing, requirements of fusing , quality control in fusing.	6	10	CO4	20%	40%	40%
6	Inventory used Labels and motifs , Linings, Interlinings, wadding, lace, braid and elastic, Hook and loop fastening, Seam binding, Shoulder pad, Eyelets and laces, Zip fasteners, Buttons, Types of buttons.	2	6	CO5	60%	20%	20%
7	Garment Inspection: Fabric inspection ,methods, fabric grading system ,Introduction to final inspection of garment, Types of final inspections ,Method of sample selection for inspection AQL, Defects, Inspection procedure,	6	10	CO6	40%	40%	20%
Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms's Revised Taxonomy).							

Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.

List of Practicals/Assignments/Tutorials:

Sr. No.	Unit	Practical/Assignment	Approx. Hours	CO
1		To make basic patterns of garment elements on paper.	3	CO7
2		To draw basic croquis	3	CO7
3		To stitch bodice and all other elements of trouser and skirt etc.	3	CO7
4		To study pattern making, marker planning with grading.	3	CO7
5		To prepare different stitches and seams as per norms.	3	CO7
6		To study the sew ability and calculate seam efficiency of given fabric.	3	CO7
7		To study of Rich piece software of garment	3	CO8
8		To prepare various elements marker blocks of garment by Rich piece software.	3	CO8

* Minimum 8 and maximum 12 practicals/experiment sessions to be included in a course in a term

Learning Resources:-

Text Books: 1. The Technology of Clothing Manufacture – Harold Carr and Barbara Latham

2. More Dress Pattern Designing – Natallie Bray

3. Aldrich W, "Metric Pattern Cutting", OM Book Service, New Delhi, 1998.

REFERENCES:

1) Garment Technology for fashion designers by Gerry Cooklin

2) Introduction to clothing manufacturing by Gerry Cooklin

3) Clothing construction and wardrobe planning by Dora S. Lewin, Mabel Goode Bowers, Manetta Knttunen — The Macmillan co New York



DIPLOMA PROGRAMME	DIPLOMA IN TEXTILE MANUFACTURES
PROGRAMME CODE	DTM
SEMESTER	SIXTH
COURSE TITLE	TEXTILE MIL PLANNING ORGANISATION AND COSTING
COURSE CODE	176TM62

TEACHING AND EXAMINATION SCHEME:

TEACHING SCHEME				EXAMINATION SCHEME												
L	T	P	CR	PAPE R HRS	TH		IS T	TOTAL		PR		OR		TW		TOTAL MARK S
					Ma x	Min		Ma x	Min	Ma x	Min	Ma x	Min			
3	1	0	4	3	80	32	20	100	40	-	-	-	-	50	20	150


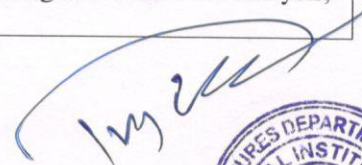
Course Objectives:

The subject covers the calculations regarding production and machinery allocation in spinning and weaving and knitting. These calculations are important in day today working plan for a textile mill. This subject also covers selection of site for new industry, Material handling, Building and construction requirement for Textile Mill, It also covers the categories of labour required in textile mills. Costing covers basic conceptual understanding of subject and its application in various methods.

Course Outcomes:

Student should be able to

CO1	Calculate the machines required in each department of spinning and weaving for processing carded, combed and folded yarns.
CO2	Understand and describe types of plant layout and its advantages and disadvantages.
CO3	Describe site selection parameters for textile units.
CO4	Describe the different categories of labour required in each department and their responsibilities.
CO5	Understand the building requirement for spinning unit, weaving unit and textile mills.
CO6	Understand and describe the requirement of lighting and humidification in textile industry.
CO7	Describe the principle, methods of material handling in textile industry.
CO8	Understand and describe the principles of costing, marginal costing and break even analysis, standard costing and depreciation.


Course Content:

SECTION-I							
Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
1	<p>Machinery specification, selection and calculations of no. of machines: Selection of machines & machinery specifications required for the product in spinning, weaving, knitting.</p> <p>Calculation for no. of machines in spinning /spin plan.</p> <p>Preparation of organization for ring spinning mill and preparatory departments based on ring spindle capacity and production of ring spun yarn (Carded, Combed, Blended, Folded).</p> <p>Preparing organization of rotor spinning mill.</p> <p>Calculation regarding efficiency, waste, draft, twist, production rates, amount of raw material required and no. of machinery required at different stages of spinning process.</p> <p>Calculation for no. of machines in weaving / weave plan - Preparation of organization for shuttle & based on number of weaving machines & production of different cloths.</p> <p>Calculation regarding efficiency, waste, crimp, production rates, raw material and no. of machinery required at different weaving processes.</p>	14	20	CO1	20%	20%	60%
2	<p>Plant and Machinery layout: Introduction, Objectives of good plant layout, Types of layouts and advantages and disadvantages. Storage space requirements, Factors influencing layouts, Selection of layout, Symptoms of bad layout.</p>	04	08	CO2	40%	40%	20%
3	<p>Site Selection: Introduction, Selection of site for textile mills, Actual selection of specific site, Factors influencing site selection.</p>	04	08	CO3	40%	40%	20%
4	<p>Labour Compliment: Types of labour required, Labour compliment, labour and staff required for spinning and weaving based on workload consideration</p>	02	04	CO4	20%	40%	40%
SECTION II							





Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
5	Civil Building Construction: General principles of building construction & building functions. Types of factory buildings. Types of building construction.	03	06	CO5	40%	40%	20%
6	Lighting: Introduction, Importance, General requirements of good lighting, Efficiency of lighting. Ventilation and Humidification: Introduction, terminology used, Psychrometric chart, Atmospheric conditions, Various methods of humidification	05	08	CO6	20%	40%	40%
7	Materials Handling: Introduction, Definition and functions, Principles of materials handling, Material handling methods, engineering and economic factors. Selection and types of material handling equipment.	04	08	CO7	40%	40%	20%
8	Costing: Introduction, definition, classification. Classification of costing methods. Marginal costing and Break even analysis. Marginal Costing and Break even analysis: Classification of costs. Assumptions of break even analysis. Break even chart, Break even point, Margin of safety and angle of incident, Marginal cost, Contribution, P/V ratio and its significance, Methods to improve P/V ratio. Problems based on break even analysis and marginal costing, Standard costing: Classification of Standard cost, Methods to determine standard costing, Advantages and limitations of standard costing, Types of variances, Significance of Revision Variance, Problems based on standard costing.	12	18	CO8	20%	40%	40%

Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms's Revised Taxonomy).

Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.

List of tutorials/assignments:

Sr. No.	Unit	Tutorial/Assignment	Hours	CO
1	1	Preparation of organization for ring spinning mill and preparatory departments based on ring spindle capacity and production of ring spun yarn (Carded).	2	CO1
2	1	Preparation of organization for ring spinning mill and preparatory departments based on ring spindle capacity and production of ring	2	CO1



		spun yarn (Combed).		
3	1	Preparation of organization for ring spinning mill and preparatory departments based on ring spindle capacity and production of ring spun yarn (Blended).	2	CO1
4	1	Preparation of organization for ring spinning mill and preparatory departments based on ring spindle capacity and production of ring spun yarn (Folded).	2	CO1
5	1	Preparation of organization for rotor spinning and preparatory departments based on rotor spindle capacity and production of rotor spun yarn.	2	CO1
6	1	Calculation for no. of machines in weaving / weave plan - Preparation of organization for shuttle & based on number of weaving machines & production of different cloths.	2	CO1
7	7	Study of different types of equipment used for materials handling in spinning, weaving mills.	2	CO7
8	8	Calculations related to Break even analysis and Standard costing	2	CO8
*Minimum 8 and Maximum 12 tutorials/assignments sessions is to be included in a term				

Text Books:

Sr. No.	Author	Title	Publisher and Edition
1	Prasanna Chandra	Project, Planning Analysis, Selection Implementation & Review	Tata McGraw Hill Publishing Co. Ltd
2	A. Ormerod	Textile Project Management	The Textile Institute Publication
3	Whealdon	Cost accounting and costing method	
4	T.R. Banga & S.C. Sharma,	Industrial Organisation & Engg. Economics	Khanna Publishers, Delhi

Reference books and Websites:

Sr. No.	Author	Title	Publisher and Edition
1	Ruddele Reed.	Plant location, Layout & Maintenance	
2	T.R. Banga & S.C. Sharma	Industrial Organisation & Engineering & Economics,	Khanna Publishers, Delhi. 20
3	http://nptel.ac.in/course.ph.p		
4	Norms for Process Parameters, Productivity etc. ATIRA, BTRA, SITRA, NITRA		



DIPLOMA PROGRAMME	DIPLOMA IN TEXTILE MANUFACTURES
PROGRAMME CODE	DTM
SEMESTER	SIXTH
COURSE TITLE	Textile Testing-II
COURSE CODE	176TM63

TEACHING AND EXAMINATION SCHEME:

TEACHING SCHEME					EXAMINATION SCHEME											
L	T	P	CR	PAPE R HRS	TH		IS T	TOTAL		PR		OR		TW		TOTAL MARK S
					Ma x	Min		Ma x	Min	Max	Min	Max	Min	M ax	Min	
4	0	3	7	3	80	32	20	100	40	50	20		-	50	20	200

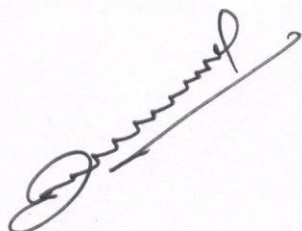
Course Objectives:

Course objective:

After studying this course student will be able to do and understands importance of fabric testing.

Course Outcomes:

1. Student will be able to understand the various parameters for evaluation of fabric properties
2. Students would be taught the properties relationship between fabric structure and properties like permeability.
3. Students would learn the fabric serviceability properties like abrasion, pilling, wrinkle, etc.
4. Students would also learn fabric functional properties like water repellency, flame retardancy, handle
5. Students will be able to perform fabric permeability and porosity .
6. Students will be able to perform drapability and thickness of fabric
7. Students will be able to perform tearing and abrasion resistance of fabric
8. Student will be able to perform tensile testing and bursting strength of fabric.




Course Content:

SECTION-I							
Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
1	Testing of fabrics :Fabric dimensions & properties need for fabric testing measurement of fabric dimensions. Fabric wt/unit area, wt/unit-length, threads per unit length in woven fabric, different methods measurements, crimp of yarn in fabrics, its measurements and effect of crimp control on fabric properties. Cloth cover and Cloth cover factor	08	12	CO1	40	40	20
2	Fabric porosity and air-permeability. Relationship between fabric porosity and air permeability. Air, water and water-vapour transmission through fabrics, thermal resistance of fabrics	6	10	CO 2	40	30	30
3	Serviceability testing parameters such as abrasion resistance, and as pilling, crease and wrinkle recovery, fabric handle, assessment of barre and other form of fabric defects.	6	10	CO 3	50	20	30
4	Fabric wettability, Water repellency and waterproof testing	4	08	CO 4	40	40	20
SECTION -II							
Unit & Sub-Unit							
5	Fabric Flammability, testing of flame retardancy	08	12	CO4	40	40	20
6	Fabric mechanical properties like strength, tear strength, bursting strength testing	10	18	CO7	40	40	20
7	Chemical Testing of Textiles: Colour fastness, Rubbing fastness, Laundering fastness	06	10	CO8	40	40	20
Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms’s Revised Taxonomy).							

Text Books :

1. Physical Testing of Textiles by B. P. Saville, 1999, Woodhead Publishing Ltd., U. K.
2. Principles of Textile Testing by J. E. Booth, 1961, Heywood Books, London.
3. Testing and Quality Management – Edited by V. K. Kothari, IAFL Publications, New Delhi, 2005

Suggested Reading:

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1. Handbook of Textile Testing and Quality Control by E. B. Grover and D. S. Hamby, 1960.

List of Practicals/Assignments/Tutorials:

Module	Practical/Assignment	Approx. contact hours	COS
1	To test air permeability property of fabric	3	CO5
2	To test water permeability property of fabric	3	CO5
3	To test thermal insulation property of fabric	3	CO5
4	To test drapability of fabric	3	CO6
5	To test fabric thickness	3	CO6
6	To test abrasion resistance property of fabric (both linear and Lissajous motion)	3	CO7
7	To test pilling propensity of fabric	3	CO7
8	To test flammability of fabric	3	CO7
9	To test tear resistance of fabric	3	CO7
10	To test tensile strength of fabric	3	CO8
11	To test bursting strength of fabric	3	CO8

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DIPLOMA PROGRAMME	DIPLOMA IN TEXTILE MANUFACTURES
PROGRAMME CODE	DTM
SEMESTER	SIXTH
COURSE TITLE	MAN MADE FIBRE PRODUCTION AND PROCESSING
COURSE CODE	176TM64

TEACHING AND EXAMINATION SCHEME:

TEACHING SCHEME				EXAMINATION SCHEME												
L	T	P	CR	PAPER HRS	TH		IS T	TOTAL		PR		OR		TW		TOTAL MARKS
					Max	Min		Max	Min	Max	Min	Max	Min			
3	0	0	3	3	80	32	20	100	40	-	-	-	-	-	-	100

Course Objectives:

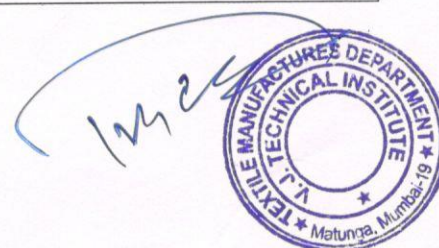
Students must be able to,

- 1) State the raw materials used in the production of man-made fibres, methods of manufacture and their physical and chemical properties.
- 2) Understand the various technologies used in filament texturing, application of spin finish, process variables and yarn properties.
- 3) Comparison and the changes required to be made in the processing of blended yarns.

Course Outcomes:

Student should be able to

CO1	Recall the raw materials in the production of man made fibres.
CO2	Describe in detail the different fibre production techniques used in the manufacture of man-made fibres.
CO3	Compare the physical and chemical properties of man-made fibres.
CO4	Recall the objects of texturing and the different methods of filament texturing.
CO5	Describe in detail the techniques used in filament texturing and the application of spin finish.
CO6	Compare the changes required in the production of blended yarns.



COURSE CONTENT:

SECTION-I							
Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
1	Basic Concepts of High Polymer Systems	6	16				
1.1	Classification of Polymers, Molecular weight, linear and non-linear polymer chains, crystallinity and glass transition temperature. Fibres from chain growth and step growth polymers. Raw materials used in the production of fibres like nylon, polyester, acrylic and polyolefins.	6	16	CO1	100%		
2	Synthetic fibre production Techniques	14	12				
2.1	Detailed study of the Melt spinning, Dry spinning and the Wet spinning techniques. Spinning of high performance fibres by gel spinning.	7	8	CO2		100%	
2.2	Production of Polyamides, Polyesters, Acrylic, Polyolefins and Viscose rayon. Introduction to Acetate, Triacetate and Lyocell fibres.	7	6	CO2		100%	
3	Comparison of the different Man made fibres	4	12				
3.1	Study of the physical properties, chemical properties and applications of Polyamides, Polyesters, Acrylics, Polyolefins and Viscose rayon. Properties of Carbon, Glass, Poly tetra fluoro ethylene (PTFE), Poly methyl methacrylate (PMMA) and Polyurethanes.	4	12	CO3			100%



SECTION-II

Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
4	Filament Texturing	12	16				
4.1	Textured yarns – Types, special features, Uses and properties.	2	6	CO4	100%		
4.2	False twist texturing process – process, feed material characteristics and machines. Draw texturing. Comparison between pin spindle and friction disc. New developments in friction texturing. Air Jet texturing – Process variables and yarn properties. Study of gear crimping, stuffer box, Knife edge crimping, Knit-de knit processes.	6	6	CO5		100%	
4.3	Comparison between the various texturing methods, process variables and yarn properties.	4	6	CO6			100%
5	Spin finishes and Tow to top conversion	4	12				
5.1	Inadequacies of man made fibres. Static electricity and the remedy. Composition of spin finishes. Methods of applications of spin finish.	4	4	CO4	100%		
5.2	The requirement for Tow to top conversion. Cut and stretch method.	4	6	CO5		100%	
6	Blended yarn production	8	12				
6.1	Blending- Purpose and process outline. Concept of blend evenness and measurement.	2	6	CO4	100%		
6.2	Precautions and the changes required in the production of man-made and blended yarns in the department of Blowroom, Card, Comber, Drawframe, Speedframe and Ringframe.	6	6	CO6			100%
		48	80				

Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms’s Revised Taxonomy).



Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.

Text Books:

Sr. No.	Author	Title	Publisher and Edition
1	J E McIntre	Synthetic fibres: nylon, polyester, acrylic, polyolefin	The Textile Institute, Woodhead Publishing Limited
2	R S Gandhi	A guide to crimping/texturing technology	Man-made textiles research association
3	S P Mishra	A textbook of fibre science and technology	New age international publishers
4	Werner Klein	Processing of Man-made fibres- Volume 7	The Textile Institute

Reference books and Websites:

Sr. No.	Author	Title	Publisher and Edition
1	V B Gupta, V K Kothari	Manufactured Fibre Technology	Springer science
2		http://www.rieter.com/en/rikipedia/articles/fibre-preparation/	
3		www.nptel.ac.in	



DIPLOMA PROGRAMME	DIPLOMA IN TEXTILE MANUFACTURE
PROGRAMME CODE	DTM
SEMESTER	SIXTH
COURSE TITLE	TECHNICAL SKILLS
COURSE CODE	176TM66

TEACHING AND EXAMINATION SCHEME:

TEACHING SCHEME					EXAMINATION SCHEME											
L	T	P	CR	PAPER HRS	TH		MST	TOTAL		PR		OR		TW		TOTAL MARKS
					Max	Min		Max	Min	Max	Min	Max	Min	Max	Min	
0	0	2	2	-	-	-	-	-	-	-	-	50	20	50	20	100

Course Objectives:

Students must be able to,

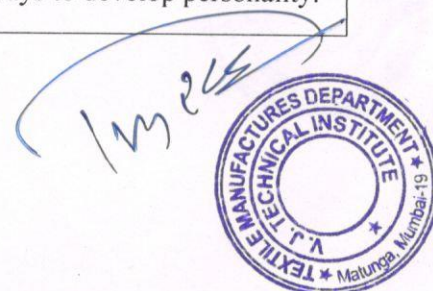
1. To develop oratorical skills like debate, elocution, meetings, extempore.
2. Know about profession and professionalism; inculcate knowledge of rights and responsibilities, exposure to safety & risk.
3. Acquire knowledge about various roles of technologists in variety of global issues and able to apply ethical principles to resolve situations that arise in their professional lives.

Course Outcomes:

Student should be able to

CO1	Understand the importance and type of technical skills in personal and professional environment.
CO2	Acquire the knowledge of technical writing.
CO3	Acquire the skills about interview procedure and presentations.
CO4	Learn about Leadership, team building, decision making and stress management.
CO5	Know about various aspects of professional attributes and learn ways to develop personality.

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Course Content:

SECTION I							
Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
1	Technical Skills - Introduction	03	10				
	1.1 Listening and Reading Skills: Listening as an active skill, Types of listeners, Listening to fill up information, Intensive listening, Developing effective listening skills, Barriers to effective listening skills. Identifying the topic sentence		05	CO1	40%	30%	30%
	1.2 Writing Skills: Sentence formation, Paragraph and Essay writing.		05	CO1	20%	40%	40%
2	Technical Writing	05	10				
	2.1 Letter Writing: Formal, Informal and dime-official letters, Business Letter.		05	CO2	20%	40%	40%
	2.2 Report Writing: Basics of Report Writing, Structure of a report, Types of reports, Job application.		05	CO2	20%	40%	40%
3	Interview Skills	08	12				
	3.1 Types of Interviews, Appropriate use of non-verbal communication.		03	C03	20%	40%	40%
	3.2 Group Discussion: Basics of group discussion, difference between group discussion and debate.		05	C03	20%	30%	50%
	3.3 Presentation Skills: Oral presentation and public speaking skills, Business presentation.		04	CO3	20%	30%	50%

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SECTION II

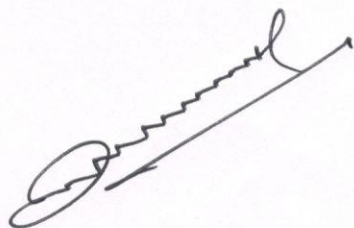
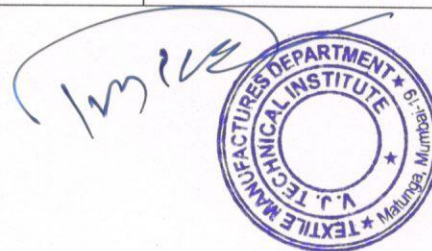
Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
4	Leadership	06	10				
	4.1 Introduction: Definition of Leaders and Leadership, Behavioral theories of leadership.		04	CO4	30%	30%	40%
	4.2 Case Study.		06	CO4	30%	30%	40%
5	Professional Attributes and Managerial Skills	10	08				
	5.1 Professional Ethics, Integrity, Responsibility and Accountability, Professional Behavior Pro actively Planning for One's Career.		04	CO5	30%	40%	30%
	5.2 Managerial Skills: Define, Types: Technical skills, Conceptual skills and Human or interpersonal management skills, Analytical Skills.		04	CO5	30%	40%	30%
		32	50				

Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms's Revised Taxonomy).

Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.

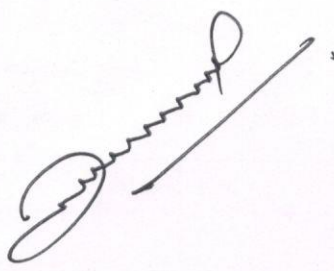
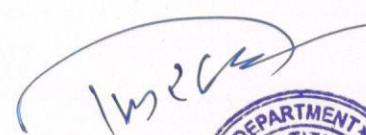
Text Books:

Sr. No.	Author	Title	Publisher and Edition
1	David A. McMurrey, Joanne Buckley	Handbook for Technical Writing	Cengage Delmar Learning India Pvt
2	Prof. (Col) P S Bajaj and Dr. Raj Agrawal	Business Ethics – An Indian	Biztantra, New Delhi,

Reference books and Websites:

Sr. No.	Author	Title	Publisher and Edition
1	Robbins, S.P. & Judge	Organizational Behavior	Pearson Education
2	John R Boatright,	Ethics and the conduct of Business	Pearson education
3	Stephen R. Covey	The 7 Habits of Highly Effective People	Free Press

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DIPLOMA PROGRAMME	DIPLOMA IN TEXTILE MANUFACTURE
PROGRAMME CODE	DTM
SEMESTER	FIFTH/SIXTH
COURSE TITLE	MARKETING MANAGEMENT
COURSE CODE	176TM56E1 / 176TM65E1

Teaching and Examination Scheme:

TEACHING SCHEME				EXAMINATION SCHEME												
L	T	P	CR	PAPER HRS	TH		IST	TOTAL		PR		OR		TW		TOTAL MARKS
					Max	Min		Max	Min	Max	Min	Max	Min			
3	0	0	3	3	80	32	20	100	40	-	-	-	-	-	-	100

Course Objectives:

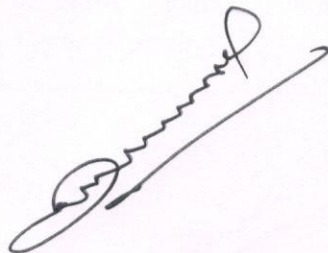
Students must be able to,

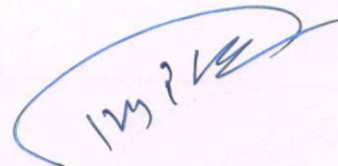
1. Plan, schedule, organize, direct, control and co-ordinate men and product for sale/marketing.
2. Assist developmental activities related to marketing/sales.
3. Establish and run one's own enterprise.

Course Outcomes:

Student should be able to

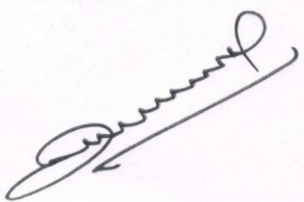
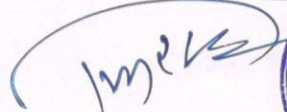
CO1	Understand the dynamics of marketing in business.
CO2	Acquire the knowledge of consumer behavior and its implications in marketing.
CO3	Understand various elements of product development and pricing.
CO4	Understand various elements of place and promotion mix and also different strategies of place and promotion to be used in business.
CO5	Understand the importance of supply chain management in market.
CO6	Apply the theoretical marketing concepts to the practical situations.
CO7	Demonstrate the ability to carry out a market research projects.
CO8	Acquire the knowledge of the customer relationship and export procedure.





Course Content:

Section I							
Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
1	Scope and Functions OF Management	4	6				
1.1	Definition of Management, Importance of Management, Nature of Management.		3	CO 1	30%	30%	40%
1.2	Functions of Management, Marketing Concepts.		3	CO 1	20%	40%	40%
2	Consumer and Organizational Buying Behavior	8	12				
2.1	Definition of consumer buying behavior, Stages of consumer buying process, Factors affecting on consumer buying behavior.		6	CO 2	30%	40%	30%
2.2	Characteristics of organizational buyers, Stages of organizational buying process, Factors affecting organizational buying behavior, marketing mix variables.		6	CO 2	30%	40%	30%
3	Product Planning, Development and Pricing	6	12				
3.1	Meaning of Product, Classification, New product development including test marketing, Product line decision, Product life cycle.		6	C03	20%	40%	40%
3.2	Policies and strategies, Factors affecting pricing, pricing under different market condition, Types of pricing.			C03	20%	40%	40%


4		Place and Promotion	6	10				
	4.1	Place: Channel, physical distribution.		4	CO 4	30%	30%	40%
	4.2	Meaning of promotion mix, Objective, Element of promotion mix, Integrated marketing communication.		6	CO 4	30%	30%	40%
Section 2								
Unit & Sub-Unit		Topics/Sub-topics	Hours	Mark s	CO	R Level	U Level	A Level
5		Supply Chain Management	6	10				
	5.1	Logistics: Ware housing, Transportation Management.		4	CO5	30%	30%	40%
	5.2	Physical Distribution: Meaning & objective, Role, & relevance of physical distribution in Indian, Inventory & transportation.		6	CO5	20%	40%	40%
6		Market Segmentation	4	6				
	6.1	Types of Market Segmentation, Target and Position.		6	CO6	30%	30%	40%
7		Marketing Research and Forecasting	8	14				
	7.1	Survey and fundamental opinion research, Annual plan control, Profitability control, Strategic control		6	CO7	20%	40%	40%
	7.2	Forecasting market future demand, Techniques of forecasting, Law of demand and supply.		8	CO7	20%	40%	40%
8		Current Trends In Marketing	06	10				
	8.1	An introduction to Customer Relationship Management		10	CO8	20%	30%	30%

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	(CRM), Rural marketing, Marketing of services and international marketing, Internet marketing, TV enabled market, Franchising, Law of demand and supply.						
		48	80				
Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms’s Revised Taxanomy).							

Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.

Text Books:

Sr. No.	Author	Title	Publisher and Edition
1	Tapan Panda	Marketing Management	2 nd Ed, Excel Publication
2	Arun Kumar & Meenakshi N	Marketing Management	2 nd Ed, Vikas publication
3	P C Tripathi & P N Reddy	Principles of Management	5 th Ed, McGraw Hill Education (India) PVT.

Reference books and Websites:

Sr. No.	Author	Title	Publisher and Edition
1	Kotler, Keller, Koshy and Jha	Marketing Management, South Asian Perspective	13 th Ed, Pearson Education
2	Ramaswamy V. S. & Namakumari	Marketing Management	4 th Ed, TMH.
3.	Module Note	Market Segmentation, Target Market Selection, and Positioning	Harvard Business School

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DIPLOMA PROGRAMME	DIPLOMA IN TEXTILE MANUFACTURE
PROGRAMME CODE	DTM
SEMESTER	FIFTH/SIXTH
COURSE TITLE	MAINTENANCE MANAGEMENT
COURSE CODE	176TM56E2 / 176TM65E2

Teaching and Examination Scheme:

TEACHING SCHEME				EXAMINATION SCHEME												
L	T	P	CR	PAPER HRS	TH		IST	TOTAL		P R		O R		T W		TOTAL MARKS
					Max	Min		20	Max	Min	Max	Min	Max	Min	Max	
3	0	0	3	3	80	32		100	40	-	-	-	-	-	-	100

Course Objectives:

Students must be able to,

1. Understand the pattern in which failure occur.
2. Realize the need of different systems of maintenance.
3. Realize students the concepts of maintenance and safety in the industry.
4. Understand the importance of the planning and control of various maintenance engineering.

Course Outcomes:

Student should be able to

CO1	Understand the need of maintenance, its functions, types & scheduling
CO2	Explain & use maintenance practices in spinning preparatory & spinning processes
CO3	Explain & use maintenance practices in weaving preparatory & weaving processes
CO4	Understand the concepts of maintenance audit, SQC synchronization and recording the maintenance activities.
CO5	Analyse the purpose of maintenance budgeting and costing.
CO6	To learn the basic and resent trends in maintenance managements



Course Content:

Section 1							
Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
1	Introduction	08	12				
1.1	Concept, importance & objectives of maintenance management breakdown, function and responsibility of maintenance department.	03	05	CO1	30%	50%	20%
1.2	Planning, steps in planning, planning techniques, scheduling principles, schedule type and techniques, PERT, CPM and other technique for planning	05	07	CO1	20%	40%	40%
2	Spinning Department	12	20				
2.1	Spinning Preparatory, Schedules, precaution and method to be followed during maintenance activities, tools and gauges used for maintenance.	06	10	CO2	30%	40%	30%
2.2	Ring frame & Rotor Spinning Machine, schedules, staff, precautions & methods to be followed, Tools & gauges and lubricant used. Study of aprons & cots used in spinning & their maintenance.	06	10	CO2	30%	40%	30%
3	Machine Audit and SQC	08	08				
3.1	Machine audit – concept and auditing of spinning and weaving machines. Energy conservation in spinning	04	04	CO4	20%	40%	40%
3.2	SQC synchronization with maintenance – SQC activities useful for maintenance in various departments of spinning and weaving.	04	04	CO4	30%	50%	20%

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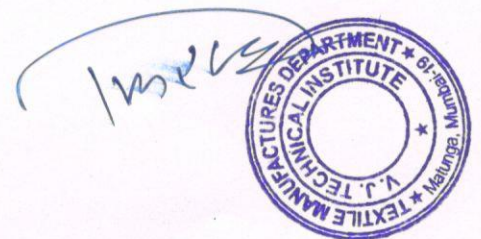
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Section 2							
Unit & Sub-Unit	Topics/Sub-topics						
4	Weaving Department	12	20				
4.1	weaving preparatory machines, schedules, critical points of maintenance, precautions to be taken during maintenance operations.	05	08	CO3	30%	40%	30%
4.2	Maintenance of plain & auto loom - Schedules, critical points, precautions, auditing of plain & auto loom. Maintenance of shuttleless weaving machines. Critical maintenance points of various shuttleless weaving machines and different lubricants.	07	12	CO3	20%	40%	40%
5	Maintenance budgeting, costing and cost control	04	10				
5.1	Introduction, classification of maintenance cost, maintenance cost components, maintenance cost analysis, purpose of cost control, maintenance budget	04	10	CO5	40%	40%	20%
6	TERO Technology	04	10				
6.1	Latest concepts training (HRD) of maintenance personal safety assessment, work environment, fire prevention and control, management of emergencies.	04	10	CO6	30%	30%	40%
	Total	48	80				

Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms’s Revised Taxonomy).

Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.



Text Books:

Sr. No.	Author	Title	Publisher and Edition
1	T.V.Ratnam & K.P.Chellamani	<i>Maintenance Management in Spinning</i>	5 th Ed, SITRA
2	AT.Shahani, B.P.Todankar, C.K.Mistry and N.Balasubramanian	<i>Maintenance in Ring Spinning</i>	

Reference books and Websites:

Sr. No.	Author	Title	Publisher and Edition
1		<i>Maintenance of Textile Machinery (Spinning, Weaving and Processing)</i>	TAIRO publication Baroda (1970)
2		<i>Norms for Mechanical Processing BTRA Bombay - 86</i>	(1979)
3	T.Granovsky	<i>Repair and Adjustment of Textile Machineries</i>	MIR publisher Moscow (1984)

Sumedh



DIPLOMA PROGRAMME	DIPLOMA IN TEXTILE MANUFACTURE
PROGRAMME CODE	DTM
SEMESTER	FIFTH/SIXTH
COURSE TITLE	INDUSTRIAL TEXTILES
COURSE CODE	176TM56E3 / 176TM65E3

Teaching and Examination Scheme:

TEACHING SCHEME				EXAMINATION SCHEME												
L	T	P	CR	PAPER HRS	TH		IST	TOTAL		PR		OR		TW		TOTAL MARKS
					Max	Min		Max	Min	Max	Min	Max	Min	Max	Min	
3	0	0	3	3	80	32	20	100	40	-	-	-	-	-	-	100

Course Objectives:

Students must be able to,

1. Gain the knowledge of different high-tech fibre, their manufacturing process, properties and applications.
2. Learn different yarn and fabric structure.
3. Get the knowledge of some industrial products.

Course Outcomes:

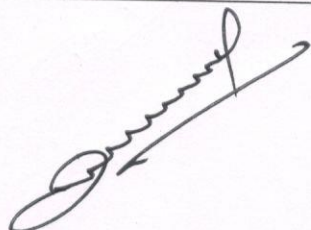
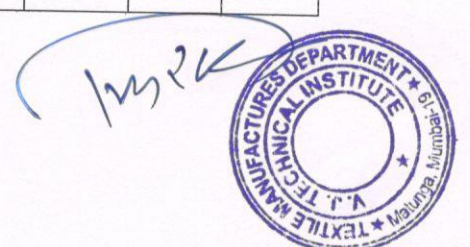
Student should be able to

CO1	Know the different high-tech fibres and their details which is crucially used in Industrial textiles.
CO2	Know industrially used yarn designs and their special features.
CO3	Understand various fabric structures which is mostly used for Industries.
CO4	Explain different industrial textile products and their technical details.



Course Content:

Section 1							
Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
1	High Tech Fibres						
1.1	Carbon fiber: Introduction, physical properties, PAN based carbon fiber, carbon nanotubes, application.	04	06	CO1	40%	40%	20%
1.2	Aramid fiber: Introduction, polymer preparation, spinning, structure and properties, applications.	04	07	CO1	40%	40%	20%
1.3	Glass fiber: introduction, glass for fibers, fiber manufacture, fiber finish, glass fiber properties, applications.	04	06	CO1	40%	40%	20%
1.4	HPPE fibre: introduction, fibre manufacturing, fibre characteristics, properties, applications.	04	06	CO1	40%	40%	20%
2	Industrial Yarns						
2.1	Industrial sewing thread: thread twist, ply and cord, thread classification, sewability parameters, applications.	04	05	CO2	30%	50%	20%
2.2	Conductive yarn: introduction, manufacturing, and structure of electro conductive yarns, measurements, applications.	04	05	CO2	30%	50%	20%
2.3	Rope: raw materials, formation of rope structures, properties of rope & applications.	03	05	CO2	30%	50%	20%
Unit & Sub-Unit	Topics/Sub-topics						

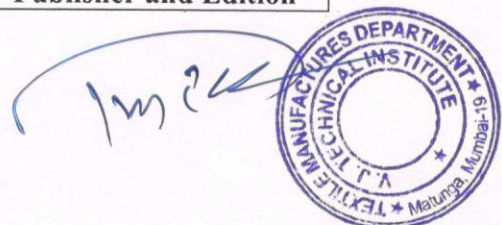



3	Industrial Fabric						
3.1	Camouflage Fabric: colours & patterns, camouflage design consideration, evaluation of camouflage pattern design.	04	07	CO3	30%	40%	30%
3.2	Multiaxial warp knitted structures: structure, properties, production method, applications.	03	07	CO3	30%	40%	30%
3.3	Triaxial fabric: introduction, classification, variations, properties, advantages, applications	03	06	CO 3	30%	40%	30%
3.4	Knotted Fabric: introduction, types of knotted fabric, production method, applications.	03	06	CO3	30%	40%	30%
3.5	Braided Fabric: introduction, classifying braids, the geometry of braided structure, applications.	03	05	CO3	30%	40%	30%
4	Industrial Textile Products						
	Flex banners, tire cord, tarpaulins, paper machine clothing	05	09	CO4	10%	40%	50%
	Total	48	80				
Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms’s Revised Taxonomy).							

Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.

Text Books:

Sr.	Author	Title	Publisher and Edition
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No.			
1	J W S Hearle	<i>High Performance fibres</i>	Woodhead publishing limited
2	R. H. Gong	<i>Specialist yarn and fabric structures</i>	Woodhead publishing limited

Reference books and Websites:

Sr. No.	Author	Title	Publisher and Edition
1	Sabit Adanur	<i>Wellingtons Sears Handbook of Industrial Textiles</i>	Technomic Publishing CO. INC.
2	Prof. Dr. Huseyin Kadoglu	<i>Conductive Yarns and Their Use In Technical Textles</i>	Technical Textile.Net A fibre 2 fashion venture
3	E Sparks	<i>Advances in Military Textiles and Personal Equipment</i>	Woodhead Publishing
4.	H. A. McKenna, J. W. S. Hearle and N. O'Hear	<i>Handbook of Fibre Rope Technology</i>	Woodhead Publishing Limited.

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DIPLOMA PROGRAMME	DIPLOMA IN TEXTILE MANUFACTURES
PROGRAMME CODE	DTM
SEMESTER	FIFTH/SIXTH
COURSE TITLE	APPAREL MERCHANDISING
COURSE CODE	176TM56E4 / 176TM65E4

TEACHING AND EXAMINATION SCHEME:

TEACHING SCHEME				EXAMINATION SCHEME												
L	T	P	CR	PAPER HRS	TH		IST	TOTAL		PR		OR		TW		TOTAL MARKS
					Max	Min		Max	Min	Max	Min	Max	Min			
3	0	0	3	3	80	32	20	100	40	-	-	-	-	-	-	100

Rationale: The latest trend in textiles is high demand for fashion oriented, value added readymade garments both locally and globally. The subject deals with apparel merchandising and apparel export merchandising, apparel retailing merchandising and visual merchandising of garments. In this subject export documentation and shipment procedure will help the student to understand the export related procedures.

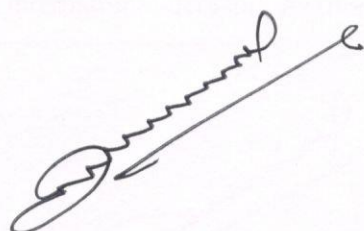
Course Objective:

To impart the detailed knowledge of apparel merchandising.

Course Outcomes:

After completing this course, Student should be able to

CO1	Define merchandising and its techniques
CO2	Explain the principles of merchandising and the detail process of apparel export merchandising
CO3	Demonstrate the apparel fashion merchandising
CO4	Describe the shipment process in export merchandising
CO5	Identify sourcing of material in apparel merchandising
CO6	Describe in detail visual merchandising
CO7	Describe in detail retail merchandising



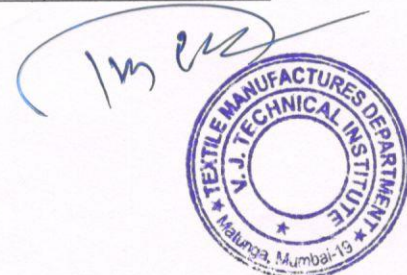


Section-I

Topics/Sub-topics		Hours	Marks	CO	R Level	U Level	A Level
1	Merchandising: Introduction to Merchandising, Significance of Merchandising in Apparel industry Categories of Apparel Merchandising Process flow of Apparel Merchandising Role and functions of merchandiser	4	8	CO1	40	40	20
2	Apparel Export merchandising: Introduction and principles Merchandising, Process flow – Buying sourcing and inventory planning, Buying communication, Enquiry and sampling, Pre-costing and reply, Order confirm, Master Planning Scheduling or critical path, Programming Samples and its types, Accessories sourcing and purchase, Inspection, Testing, Cutting, Approvals	04	10	CO2	40	40	20
3	Apparel fashion merchandising: Apparel Fashion Concept of fashion Merchandising Principles of fashion, Fashion cycle leadership theories ,Organization for fashion merchandising Apparel fashion merchandising process ,Fashion forecasting Fashion shows	11	16	CO3	40	40	20
4	Shipment: Shipment flow, Container details, Leasing methods Document negotiation process, Functions of forwarding agents, Port and shipping lines	05	06	CO4	40	40	20

Section –II

Topics/Sub-topics		Hours	Marks	CO	R Level	U Level	A Level
5	Export documentation: Introduction to export documentation, Commercial Documentation Documents, Regulatory documents, Documents related to goods, Documents related to shipment Documents related to payments, Documents related to Inspection, Documents related to excisable goods	08	12	CO5	60	20	20
6	Merchandising according to domestic and international demand, requirements	04	08	CO5	40	40	20

	and supply; Application of information technology in merchandising; Costing with respect to export and domestic market						
7	Visual merchandising: Introduction to visual merchandising ,Merchandising Functions of visual merchandising Elements of visual merchandising Visual merchandising techniques	06	10	CO6	20	60	20
8	Apparel retail merchandising: Introduction, Functions, Types of retailing, Apparel retail merchandising process, Consumer Vs retailing, Prospects of apparel retailing in India	06	10	CO7	20	60	20
Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms’s Revised Taxanomy).							

Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.

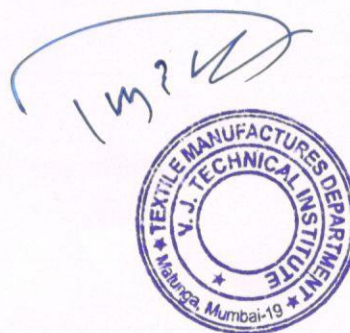
Learning Resources:-

Text Books:

1 Apparel Merchandising, An Intgrated Approach, M. Krishnakumar, Abhishek Publications, Chandigarh, First Edition, 2010.

References :

1 Marketing Textiles, From Fiber to Retail, Allen C. Cohen, Fairchild Publication, New York, 1989



DIPLOMA PROGRAMME	DIPLOMA IN TEXTILE MANUFACTURES
PROGRAMME CODE	DTM
SEMESTER	FIFTH/SIXTH
COURSE TITLE	LONG STAPLE SPINNING AND WEAVING
COURSE CODE	176TM56E5 / 176TM65E5

TEACHING AND EXAMINATION SCHEME:

TEACHING SCHEME				EXAMINATION SCHEME												
L	T	P	CR	PAPER HRS	TH		IST	TOTAL		PR		OR		TW		TOTAL MARKS
					Max	Min		Max	Min	Max	Min	Max	Min			
3	0	0	3	3	80	32	20	100	40	-	-	-	-	-	-	100

Course Objectives:

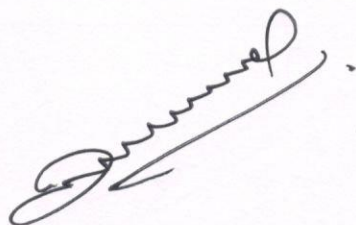
Students must be able to,

1. Understand the classification, physical and chemical properties of long staple fibres.
2. State the specific features of long staple fibres influencing the performance at various stages of spinning and weaving.
3. State the objects of mechanical processing of bast, leaf and fruit fibres and describe in detail it's working.
4. Understand the process flow in production and get exposure to the processing of woollen and worsted yarns and fabrics.
5. Understand the process flow in production and get exposure to the processing of silk yarn and fabrics.
6. Knowledge of applications of Long staple fibres in different sectors.

Course Outcomes:

Student should be able to

CO1	Recall the classification, physical and chemical properties of long staple fibres.
CO2	Describe the working of the various mechanisms and specific features of long staple fibres influencing the performance at various stages of spinning and weaving.
CO3	Comparison of the different methods of production and Important applications of long staple fibres in different sectors of textile with a focus on the woollen and silk industry.





Course Content:

SECTION-I							
Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
1	Long staple fibres - Introduction	7	28				
1.1	Introduction to the Varieties, origin, classification, grading. Introduction to the physical and chemical properties of long staple fibres.	3	16	CO1	100%		
1.2	Applications of long staple fibres, yarns, and fabrics in various sectors.	4	12	CO3			100%
2	Bast fibres - Jute, Flax (linen), Hemp, Ramie	10	8				
2.1	Extraction method, Preparation, batching, carding, drawing, roving and ring spinning.	5	4	CO2		100%	
2.2	Construction and working of the different basic motions in weaving.	5	4	CO2		100%	
3	Leaf and fruit-based fibres – Sisal, Coir etc.	7	6				
3.1	Fibre extraction method and preparation.	7	6	CO2		100%	

SECTION-II							
Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
4	Animal hair/protein fibres - Wool	10	8				
4.1	Manufacturing of woolen yarn - preliminary processes, blending or mixing, woolen carding, woolen spinning, woolen yarn numbering.	6	4	CO2		100%	
4.2	Manufacturing of worsted yarn – worsted carding, gilling, and combing, worsted drawing, worsted yarn spinning, worsted yarn numbering.	4	4	CO2		100%	
5	Animal Protein fibres – Silk	10	24				

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5.1	Different types of silk – Mulberry, Tussar, Muga, Eri etc. various devices used in silk reeling.	4	20	CO1	100%		
5.2	Manufacturing of silk fabrics. Raw silk reeling: methods, Production of spun silk. Evaluation of silk fabric handle.	6	4	CO2		100%	
6	Comparison with other animal hair fibres	4	12				
6.1	Woolen yarn vs. worsted yarn; Different applications of silk fabric. Comparison of Cashmere, Mohair, Angora, Alpaca etc. with the other long staple fibres.	4	12	CO3			100%
		48	80				

Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms’s Revised Taxonomy).

Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.

Recommended References:

1. Corbman, B.P. - Textiles:Fibre to Fabric, McGraw Hill International Edition, 1983
2. R.R.Atkinson – Jute Fibre to yarn, B.I. Publication, Bombay, India, 1965.
3. Richards, RTD, Sykes, A.B. – Wollen Yarn Manufacture, The Textile Institute, 1994
4. Tomar, R.S. – Hand Book of Wool and Blended Suiting Process, Woodhead Publishing, ISBN: 978-1-84569-954-3.
5. Matsudaira, M., Kawabata, S. – A Study of The Mechanical properties of Woven Silk Fabrics (Part I, II, III), Journal of The Textile Institute, 1988, 79 (3), pp. 490-503.



COURSE NAME	DIPLOMA IN TEXTILE MANUFACTURE
COURSE CODE	DTM
SEMESTER	FIFTH/SIXTH
SUBJECT TITLE	TEXTRONICS
SUBJECT CODE	176TM56E6 / 176TM65E6

Teaching and Examination Scheme:

TEACHING SCHEME					EXAMINATION SCHEME											
L	T	P	CR	PAPER HRS	TH		IST	TOTAL		PR		OR		TW		TOTAL MARKS
					Max	Min		Max	Min	Max	Min	Max	Min			
3	0	0	3	3	80	32	20	100	40	-	-	-	-	-	-	100

Course Objectives:

Students must be able to,

1. Know the basic knowledge of electronic sensors, power electronics, transducers, transistor and PLC to make the automation in the Textile industry to get good quality of product with minimum time.

Course Outcomes:

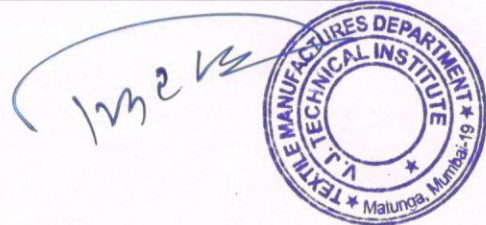
Student should be able to

CO1	Understand fundamentals of transistor and its application in the textile machineries.
CO2	Learn the digital electronics which handle digital signals in the manufacturing process.
CO3	Learn the modification of transistor i.e. power electronics which convert one form of power to another using various devices.
CO4	Use electromagnetic devices and switches to the textile industry.
CO5	Know the functioning of various sensors and actuators in textile machines.
CO6	Apply knowledge of microcontroller and PLC in atomization in textile industry.



Course Content:

SECTION 1							
Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
1	Transistor and It's Application	09	15				
1.1	BJT Principle, construction and working, BJT as an amplifier and switch	03	05	CO 1	20%	40%	40%
1.2	FET Principle, construction, working and application, MOSFET Principle, construction, working and its application.	06	10	CO 1	20%	40%	40%
2	Digital Electronics	06	10				
2.1	Design of Gates: AND, OR, XOR, NANN, NOR, simplification of logic expression of Boolean Algebra, De Morgan's Theorem.	03	05	CO 2	30%	40%	30%
2.2	Flip Flops: D, T, JK, SR	03	05	CO 2	30%	40%	30%
3	Industrial Electronics	09	15				
3.1	Principle, Construction, Working and application of SCR, DIAC & TRIAC, Power Transistor, Power MOSFET.	09	15	CO 3	20%	40%	40%
SECTION 2							
Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
4	Transducers	06	10				
4.1	Introduction of transducer, construction and application of	06	10	CO	20%	40%	40%



		various transducer like humidity, pressure, Strain gauge, Thermocouple, Thermistor, RTD, LVDT			4			
5		Sensors	06	10				
	5.1	Operation of smoke detector circuit using LDR in Blow Room, Phototransistor used to measure speed of DC motor, Optoelectronics sensor used in speed frame	06	10	CO 5	20%	40%	40%
6		Ladder Diagram Fundamentals	06	10				
	6.1	Basic components and their symbols, control transformer, fuses, switches, indicator, lamps, relay, timers, fundamentals ladder diagram, machine control terminology.	06	10	CO 6	40%	30%	30%
7		Programmable Logic Controller	06	10				
	7.1	Basic arrangement of PLC, Principles of PLC, Mechanical Parts of PLC System, Selection of PLC, Application & Commercial specification of PLC	06	10	CO 6	20%	40%	40%
		Total	48	80				
Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms’s Revised Taxonomy).								

Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.

Text Books:

Sr. No.	Author	Title	Publisher and Edition
1	B.L.Theraja,	<i>Fundamentals of Electrical Engineering and Electronics</i>	S.Chand & Company
2	Hiren Joshi, Gauri Joshi, A.K.Gupta	Electronic Control for Textile Machinery	NCUTE



3	L. Ashok Kumar & M. Senthil Kumar	Automation in Textile Machinery (Instrumentation and Control system Design Principle)	Taylor and Francis Group
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Reference books and Websites:

Sr. No.	Author	Title	Publisher and Edition
1.	Robert Boylestad & Louis Hashesky	Electronic Devices & Circuit Theory	9 th Ed, Prentice Hall India Pvt. Ltd.
2	R.P.Jain	Modern Digital Electronics	4 th Ed, Tata McGraw Hill Publishing Company
3.	M.D.Singh & K.B. Khanchandani	Power Electronics	2 nd Ed, Tata McGraw Hill Publishing Company
4.	A.K.Sawhney	Electrical and Electronic measurements & Instrumentations	Dhanpatray & Co.
5.	John R Hackworth & Frederick D Hackworth	Programmable Logic Controllers: Programming Method & Application	1 st Ed, Jr. Person Education

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DIPLOMA PROGRAMME	DIPLOMA IN TEXTILE MANUFACTURES
PROGRAMME CODE	DTM
SEMESTER	FIFTH/SIXTH
COURSE TITLE	ENTREPRENEURSHIP DEVELOPMENT
COURSE CODE	176TM56E7 / 176TM65E7

TEACHING AND EXAMINATION SCHEME:

TEACHING SCHEME				EXAMINATION SCHEME												
L	T	P	CR	PAPER HRS	TH		IST	TOTAL		PR		OR		TW		TOTAL MARKS
					Max	Min		Max	Min	Max	Min	Max	Min			
3	0	0	3	3	80	32	20	100	40	-	-	-	-	-	-	100

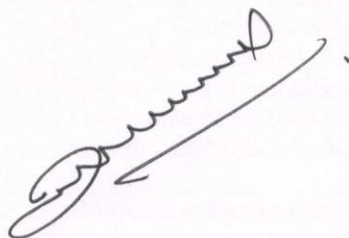
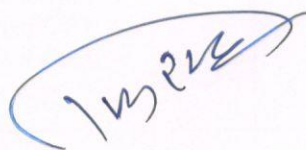
Course Objectives:

Globalisation, Liberalization and privatization along with revolution in information technology have opened up new opportunities transforming lives of masses. In this context, there is immense opportunity of establishing manufacturing, service, trading, marketing and consultancy enterprises by diploma engineer. Our fast growing economy provides ample scope for diploma engineers to succeed as an entrepreneur. Entrepreneurship requires distinct skill sets which are attempted to be developed through this course. To begin with, this course aims to develop the competency and related outcomes in order to start small enterprise.

Course Outcomes:

Student should be able to

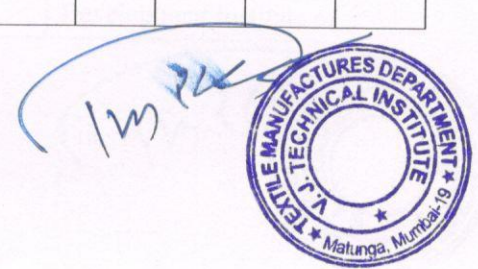
CO1	Identify entrepreneurial traits
CO2	Identify business opportunities
CO3	Use the support system to zero down business idea
CO4	Develop comprehensive business plans
CO5	Prepare plans to manage the enterprise effectively


Course Content:

SECTION-I							
Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
1	<p>Entrepreneurship development concept and scope: Entrepreneurship as a career, Traits of successful intrapreneur/entrepreneur: consistency, creativity, initiative, independent decision making, assertiveness, persuasion, persistent, information seeking, handling business communication, commitment to work contract, calculated risk taking. Entrepreneurship: scope in local and global market Intrapreneur and Entrepreneur Types of enterprises and their features: Manufacturing, service and trading, Steps in setting up a business</p>	06	10	CO1	50%	25%	25%
2	<p>Entrepreneurial opportunities and selection process: Product/services selection: Process, Core competence, Product/service life cycle, new product/service development process, mortality curve, creativity and innovation in product/service modification/development. Process selection: Technology life cycle, forms and cost of transformation, factors affecting process selection, location for an industry, material handling. Market study procedures: questionnaire design, sampling market survey, data analysis Getting information from concerned stakeholders such as Maharashtra Centre for Entrepreneurship development(MCED), National Institute for Micro, Small and Medium Entrepreneurship (NI- MSME), Prime Minister Employment Generation Program(PMEGP), Directorate of Industries (DI), Khadi Village Industry Commission (KVIC),</p>	12	20	CO2	20%	40%	40%
3	<p>Managing Enterprise: Unique Selling Proposition(USP): Identification, developing a marketing plan Preparing strategies for handling business: Policy making, negotiation and bargaining techniques</p>	06	10	CO3	25%	50%	25%

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	<p>Risk Management: Planning for calculated risk taking, initiation with low cost projects, integrated futuristic planning, anger investor, venture capitalist.</p> <p>Incubation centres: Role and procedures</p>						
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SECTION II

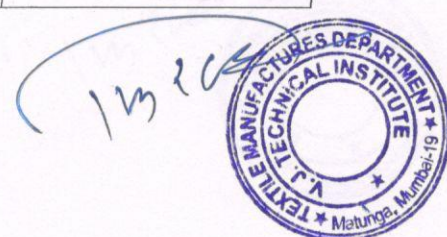
Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
4	<p>Support systems: Categories of MSME, ancillary industries,</p> <p>Support systems: Government agencies, MCED, NI-MSME, PMEGP, DI, KVIC.</p> <p>Support agencies for entrepreneurship guidance, training, registration, technical consultation, technology transfer and quality control, Marketing and finance.</p> <p>Break even point, return on investment and return on sales</p>	10	18	CO4	40%	40%	20%
5	<p>Business plan preparation: Sources of product for business: Feasible study Ownership, Capital, Budgeting, Matching entrepreneur with the project, feasibility report preparation and evaluation criteria.</p>	14	22	CO5	40%	30%	30%
	Total	48	80				

Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms’s Revised Taxonomy).

Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.

Text Books:

Sr. No.	Author	Title	Publisher and Edition
1	Mehta, Monica	The Entrepreneurial instinct: How Everyone Has The Innate Ability to start a Successful Small Business	McGraw Hill Publication, New Delhi 2012, ISBN 978-0-07 179747-9
2	Hisrich R.D.	Entrepreneurship	McGraw-Hill Education New Delhi. 2013 ISBN-13:978-1259001635
3	Sareen S.B.	Part I Readings in Entrepreneurship Education	Entrepreneurship Development Institute of



			India (EDI), GOI, 2016, Ahmedabad, ISBN: 978-0078029196
4	Gujral, Raman	Reading Material of Entrepreneurship Awareness Camp	Entrepreneurship Development Institute of India (EDI), GOI, 2016, Ahmedabad.
5	Chitale A.K.	Project Design and Manufacturing	PHI Learning, New Delhi, 2014; ISBN:9788120348738
6	Charantimath Poornima	Entrepreneurship Development Small Business Entrepreneurship	Pearson Education India, New Delhi, ISBN:9788131762264
7	Khanka S.S.	Entrepreneurship and Small Business Management	S. Chand and Sons, New Delhi, ISBN:978-93-5161-094-6
8	S. Anilkumar	Entrepreneurship Development	New Age International, New Delhi, ISBN:9788122414349

Reference books and Websites:

Suggested Software/Learning Websites:

1	MCED Books links	http://www.mced.nic.in/UdyojakSpecial.aspx?linktype=Udyojak
2	MCED Project and Plan details	http://www.mced.nic.in/allproducts.aspx
3	The National Institution for Entrepreneurship and Small Business Development	http://niesbud.nic.in/Publication.html
4	Courses: The National Institution for Entrepreneurship and Small Business Development	http://niesbud.nic.in/docs/1standardized.pdf
5	Entrepreneur.com	https://www.entrepreneur.com/lists
6	Government Sponsored Schemes	https://www.nabard.org/content1.aspx?id=23andcatid=23andmid=530
7	NABARD- Information Centre	https://www.nabard.org/Tenders.aspx?id=501andid=24
8	NABARD- What We Do	https://www.nabard.org/content1.aspx?id=8andcatid=8andmid=488
9	Market Review	https://www.businessstoday.in/markets
10	Start Up India	http://www.startupindia.gov.in/pdf/file.php?title=startup%20India%20Action%20Planandtype=Actionandq=Action%20Plan.pdfandcontent_type=Actionandsubmenupoint=action
11	About -Entrepreneurship Development Institute of India (EDII)	https://www.ediindia.org/institute.html
12	EDII- Centres	https://www.ediindia.org/centres.html

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COURSE NAME	DIPLOMA IN TEXTILE MANUFACTURE
COURSE CODE	DTM
SEMESTER	FIFTH/SIXTH
SUBJECT TITLE	NANOTECHNOLOGY AND COMPOSITES
SUBJECT CODE	176TM56E8 / 176TM65E8

Teaching and Examination Scheme:

TEACHING SCHEME					EXAMINATION SCHEME											
L	T	P	CR	PAPER HRS	TH		IST	TOTAL		PR		OR		TW		TOTAL MARKS
					Max	Min		Max	Min	Max	Min	Max	Min	Max	Min	
3	0	0	3	3	80	32	20	100	40	-	-	-	-	-	-	100

Course Objectives:

Students must be able to,

1. To motivate the students about the important of the nanotechnology and its various application.
2. To present knowledge of composite, its structure and use of various forms and textiles in the field of composites.

Course Outcomes:

Student should be able to

CO1	Learn the advance in the field of nanomaterial's used in the textile and allied area.
CO2	Design the methodology to resolve societal and environmental implications of nanoscience and technology.
CO3	Develop the innovative methodology to meet the emerging challenges and opportunity both at national and international level relating to nanotechnology and its potential application in the advance textile area.
CO4	Understand the importance of composites in Textile filed.
CO5	Learn the principle and production process of composite.
CO6	Formulate application of textile composites in various field of engineering.

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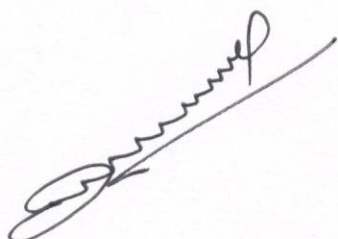
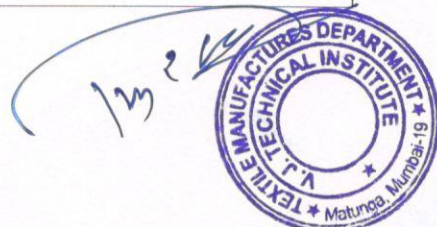
Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
1	Introduction to Nanotechnology:	04	10	CO1	30%	30%	40%
1.1	Fundamental of Nanoscience Nanotechnology, Introduction to nanomaterial: Definition, Concept, Requirement						
2	Production of Nanomaterials:	08	12	CO2	30%	30%	40%
2.1	Principle and production of nanomaterials, nanoparticles, nanospheres etc, Top down and bottom down approaches for production of nanomaterials. Electrospinning technique						
3	Nanofibers for Textile Applications:	08	12	CO3	20%	40%	40%
3.1	Production of nanofibers, Applications of Nanofibers in Air and water filtration, Controlled drug delivery, Tissue reconstruction, Barrier materials, Anti-microbial fabric other advanced technique in field of various engineering						
4	Nano-Enhanced Finishing Treatments:	04	06	CO3	20%	40%	40%
4.1	Nano formulations for dyes, Nano coatings and nano finishing.						



SECTION 2

Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
5	Introduction	04	10	CO4	30%	30%	40%
5.1	Importance of composites materials, Classification and fibre formation, composition, structure, properties.						
6	Principle and Classification	12	20				
6.1	Principles and Instrumental Technique (SEM, XRD, AFM, TEM, Particle size and Particle size distribution, Stability etc).	04	08	CO5	30%	30%	40%
6.2	Classification of composites on the basis of reinforcement and matrix, Major composite classes: polymer matrix, metal matrix, ceramic matrix, carbon/carbon, and intermetallic composites. Hybrid composites, Laminated composites. Examples of each class of composites. Particulates, Flakes, Whiskers, Fibers	08	12	CO5	20%	40%	40%
7	Applications	08	10	CO6	30%	30%	40%
7.1	Applications of advanced composite materials. Environmental effects in Composites, Green composites. ; Synthesis and Properties of Nanocomposites.						
	Total	48	80				

Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms’s Revised Taxonomy).

Course Content:

Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.

Text Books:

Sr. No.	Author	Title	Publisher and Edition
1	P Brown and K Stevens	Nanofibers and nanotechnology in textiles	1. USA Woodhead
2	Long A C	Design and Manufacture of Textile Composites	Woodhead Publishing Ltd., UK, 2005.

Reference books and Websites:

Sr. No.	Author	Title	Publisher and Edition
1.	Adanur, S., and Ascioğlu, B.	Processing Characterization of PVA Nanofibers in Electrospinning	Hilton Head
2	Gupta L.	Advanced Composite Materials",	Himalayan Books



DIPLOMA PROGRAMME	DIPLOMA IN TEXTILE MANUFACTURES
PROGRAMME CODE	DTM
SEMESTER	FIFTH /SIXTH
COURSE TITLE	INDUSTRIAL ENGINEERING
COURSE CODE	176TM56E8 / 176TM65E8

TEACHING AND EXAMINATION SCHEME:

TEACHING SCHEME				EXAMINATION SCHEME												
L	T	P	CR	PAPER HRS	TH		IST	TOTAL		PR		OR		TW		TOTAL MARKS
					Max	Min		Max	Min	Max	Min	Max	Min			
3	-	-	3	3	80	32	20	100	40	-	-	-	-	-	-	100

Course Objectives:

To help the student to attain the following industry identified competency through various teaching learning experiences.

Apply Industrial Engineering techniques to improve the production and processes for assuring quality of products

Course Outcomes:

Student will be able to

CO1	Understand importance of productivity and factors for improvement in productivity
CO2	Apply work study techniques to optimize manufacturing process
CO3	Use PERT and CPM techniques for scheduling and controlling the manufacturing activities
CO4	Apply inventory control methods for managing inventory
CO5	Use SQC and Draw & Interpret control charts for variable and attribute data.
CO6	Formulate and solve Linear Programming Problem.

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Course Content:

SECTION-I							
Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
1	Production System	02	04				
1.1	Introduction to Industrial Engineering: Definition, Need, Objectives and Scope Production - Definition , Types of production systems	01	02	CO1	60 %	40 %	-
1.2	Productivity - Importance , Measurement of Productivity , Reasons for low productivity, Techniques of improving productivity	01	02	CO1	40 %	60 %	-
2	Work study	10	12				
2.1	Work study: Introduction, Definition, significance, Procedure of Work study, Comparison between Method study (Motion Study) and Time study (Work Measurement)	2	2	CO2	40 %	60 %	-
2.2	Method Study: Definition, objectives, procedure, selection of work. Recording Techniques - Process Charts – Outline process chart, Flow process chart, Two Hand process chart, Multiple activity chart, Flow diagram, String diagram, Travel chart.	4	5	CO2	10 %	30 %	60 %
2.3	Work Measurement – Definition, objectives, procedure, Time Study, Time Study Equipments: Stop Watch Work measurement techniques: Time Study, Standard Time, Work Sampling, Allowances, Calculation of Standard Time, Concept of Job evaluation and Merit Rating.	4	5	CO2	10 %	30 %	60 %
3	Network Analysis	07	14				
3.1	PERT and CPM: Comparison and application	01	02	CO3	80 %	20 %	-
3.2	PERT and CPM: Network construction, Rules, analysis and problems based on Network	06	12	CO3	10 %	10 %	80 %

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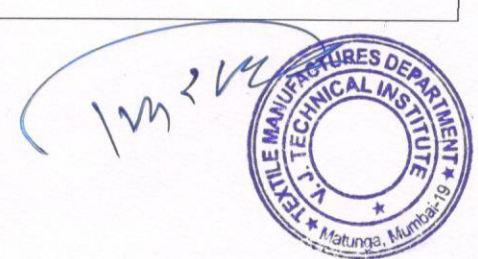


4		Inventory Control	05	10				
	4.1	Introduction, methods of inventory management, inventory cost relationship	01	02	CO4	60 %	40 %	-
	4.2	Economic Order Quantity: EOQ Model, Study and Calculation of EOQ	02	04	CO4	10 %	30 %	60 %
	4.3	ABC analysis	02	04	CO4	10 %	30 %	60 %

SECTION-II

Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level	
5		Statistical Quality Control	08	12				
	5.1	Quality control: Objectives, Principles and advantages Statistical Quality Control: Meaning and importance, Variable and attribute Measurement	02	04	CO5	80 %	20 %	-
	5.2	Acceptance Sampling: Concept, Comparison with 100% inspection, Operating Characteristics Curve, types of sampling plans, sampling methods, merits and demerits	06	08	CO5	40 %	60 %	-
6		Control Charts	08	14				
	6.1	Introduction, Purpose, Types, Advantages and limitation	02	04	CO5	80 %	20 %	-
	6.2	Control charts for variables – X and R charts Control charts for attributes p, np, C charts, Problem based on control charts	06	10	CO5	10 %	10 %	80 %
7		Operational Research	08	14				
	7.1	Introduction and Tools of O.R.	01	02	CO6	90 %	10 %	-
	7.2	Linear Programming: Formulation of LP problem, Solving LP problem using graphical and simplex method	07	12	CO6	-	10 %	90 %
			48	80				

Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms’s Revised Taxonomy).



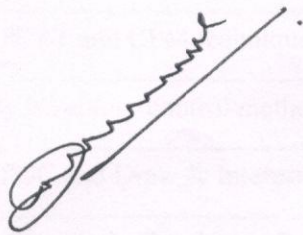
Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.

Text Books:

Sr. No.	Author	Title	Publisher and Edition
1	ILO	Work study	ILO Geneva
2	Dr. B. Kumar	Industrial Engineering and Management	Khanna Publishers
3.	O.P. Khanna	Industrial Engineering and Management	Dhanpat Rai & Sons
4.	Dr. S. Dalela and Mansoor Ali	A text book of Industrial Engg. and Management system	Standard Publisher Distributors

Reference books and Websites:

Sr. No.	Author	Title	Publisher and Edition
1	Baffna , Sarin	Modern Production and Operations Management	--



DIPLOMA PROGRAMME	DIPLOMA IN TEXTILE MANUFACTURE
PROGRAMME CODE	DTM
SEMESTER	FIFTH/SIXTH
COURSE TITLE	TEXTILE DESIGN AND COLOUR
COURSE CODE	176TM56E10 / 176TM65E10

Teaching and Examination Scheme:

TEACHING SCHEME				EXAMINATION SCHEME												
L	T	P	CR	PAPER HRS	TH		IST	TOTAL		PR		OR		TW		TOTAL MARKS
					Max	Min		Max	Min	Max	Min	Max	Min	Max	Min	
3	0	0	3	3	80	32	20	100	40	-	-	-	-	-	-	100

Course Objectives:

Students must be able to,

1. To develop textile design with the help of designing principles.
2. To compose textile design with different bases.
3. To ensure that students have first-hand experience of the processes involved in the planning and production of contemporary Textile outcomes.

Course Outcomes:

Student should be able to

CO1	Understand concepts, composition of designs and geometric ornamentation.
CO2	Understand elements and principles of design.
CO3	Understand various terminology and theories of colours.
CO4	Design ideas concepts and their role and application in apparel construction.



Course Content:

Section I							
Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
1	Design						
1.1	The elements of design. Important principles of design. Composition of design and arrangements of figures. Guidelines for fabric printing colour modification in textile fabric.	10	10	CO1	40%	40%	20%
1.2	Elements and Principles of Design :- Natural Motif, Decorative Motif, Geometric Motif, Abstract Motif, line, direction, shape, size, texture, value, colour, repetition, alternation, harmony, gradation, contrast, dominance and subordination, unity balance. Origin and basis of patterns from historic and modern fabrics. Survey of designing methods, studio and workshop techniques. Free hand sketching, enlarging and arrangement of motifs.	14	30	CO1	20%	40%	40%
Section II							
Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
2	Colour						
	Elements Of Colour :- Light and colour phenomenon. Physical basis of colour emissions, absorption of light. Primary, Secondary and Tertiary Colours. Complementary colours, Hues, Tints and Shades. Colours in combination and colours in contrast. Application of colour to woven fabrics.	16	20	CO3	30%	30%	40%

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	Influence of fabric characteristics (weave) on appearance of colour. Chromatic circle, colour vision – Pigment theory of colour, colour wheel, etc.						
2.2	Colour Harmony and Colour Modification :- Achromatic Harmony, Monochromatic Harmony, Analogous Harmony, High Key, Low Key, Mid Key Harmony, Change in Hue, Change in Value, neutralised colour.	08	20	CO3	20%	40%	40%
	Total	48	80				

Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms’s Revised Taxonomy).

Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.

Text Books:

Sr. No.	Author	Title	Publisher and Edition
1	Z. Grosicki	<i>Watson’s Textile Design & Colour</i>	Woodhead Publishing

Reference books and Websites:

Sr. No.	Author	Title	Publisher and Edition
1	S.Shah, R.S.Gandhi	<i>Instrumental Colour Measurements and Computer Aided Colour Matching for Textiles</i>	Mahajan Book Distributors
2	Paterson D.	<i>Textile Colour Mixing</i>	Forgotten Books

