



Veermata Jijabai Technological Institute (V.J.T.I.)

(Central Technological Institute, Maharashtra State, INDIA)

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Website: www.vjti.ac.in

PROGRAMME NAME: DIPLOMA IN TEXTILE ENGINEERING

With Effect From Academic Year : 2023-24

Duration : 16 Weeks

Scheme : R-2023

: DTE

: 6 Semester

: Third

Programme Code

Duration of Programme

Semester

Sr No	Course Title	Abbreviations	Course Type	Course Code	Total IKS Hrs for Sem.	Learning Scheme				Credits	Assessment Scheme												
						Actual Contact Hrs./Week		Self-Learning (Term Work + Assignment)	Notional Learning Hrs./Week		Paper Duration (hrs.)	Theory		Based on LL & TL		Based on Self Learning		Total Marks					
						CL	TL					LL	Total	FA (CA)	SA (PR/OR)	Max	Min		Max	Min			
																					EA-TH (MST)	SA-TH	Max
1	YARN MANUFACTURE -II	YM-II	DSC	236TE31	-	4	-	2	-	6	3	30	70	28	100	40	25	10	25	10	-	-	150
2	FABRIC MANUFACTURE -II	FM-II	DSC	236TE32	2	4	-	2	-	6	3	30	70	28	100	40	25	10	25	10	-	-	150
3	TEXTILE TESTING-I	TTS-I	DSC	236TE33	2	3	-	3	-	6	3	30	70	28	100	40	25	10	25	10	-	-	150
4	TEXTILE CHEMISTRY -I	TC-I	DSC	236TE34	2	3	-	3	2	8	4	30	70	28	100	40	25	10	25	10	25	10	175
5	GARMENT TECHNOLOGY	GT	DSC	236TE35	2	3	-	3	2	8	4	30	70	28	100	40	25	10	25	10	25	10	175
6	ADVANCE EXCEL AND DATA ANALYSIS	AED	SEC	236TE36	-	-	-	2	2	4	2	-	-	-	-	-	25	10	-	-	25	10	50
7	ESSENCE OF INDIAN CONSTITUTION	EIC	VEC	236TE37	-	1	-	-	1	2	1	-	-	-	-	-	-	-	-	-	50	20	50
Total						08	18	-	15	07	40	20	500	150	350	500	150	125	125	125	125	125	900

Abbreviations : CL- Classroom Learning , TL- Tutorial Learning, LL-Laboratory Learning, FA- Formative Assessment, SA -Summative Assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment

Legends : @ Internal Assessment, # External Assessment, * On Line Examination, @\$ Internal Online Examination

Course Category : Discipline Specific Course Core (DSC) : 4, Discipline Specific Elective (DSE) : 0, Value Education Course (VEC) : 1, Intern./Apprenti./Project./Community (INP) : 0, Ability Enhancement Course (AEC) : 1, Skill Enhancement Course (SEC) : 2, Generic Elective (GE) : 0

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Curriculum Coordinator



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Head Diploma in Mechanical Engineering

Dean - Diploma

DIPLOMA PROGRAMME	: DIPLOMA IN TEXTILE ENGINEERING
PROGRAMME CODE	: DTE
SEMESTER	: THIRD
COURSE TITLE	: YARN MANUFACTURE-II
COURSE CODE	: 236TE31

I. TEACHING AND EXAMINATION SCHEME

TEACHING SCHEME					EXAMINATION SCHEME												
C L	T L	L L	Self - lear ning	CR	PAPER HRS	FA-TH (MST)	SA-TH (ESE)		TOTAL		Based on LL & TL Practical				Based on Self- learning		TOTAL MARKS
							Max	Min	Max	Min	FA-PR (CA)		SA-PR (PR/OR)		SLA		
						Max					Min	Max	Min	Max	Min	Max	
4	0	2	-	3	3	30	70	28	100	40	25	10	25#	10	-	-	150

Total IKS Hrs for Sem.: - Hrs

Abbreviations : CL- Classroom Learning , TL- Tutorial Learning, LL-Laboratory Learning, FA - Formative Assessment, SA -Summative Assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment

Legends : @ Internal Assessment, # External Assessment, *# Online Examination , @\$ Internal Online Examination

Course Category : Discipline Specific Course Core (DSC) : 3, Discipline Specific Elective (DSE) : 0, Value Education Course (VEC) : 1, Intern./Apprenti./Project./Community (INP) : 0, Ability Enhancement Course (AEC) : 2, Skill Enhancement Course (SEC) : 2, Generic Elective (GE) : 0

II. RATIONALE

A textile engineer must deal with various textile materials and machines in the industries. The study of basic concepts of yarn and fabric manufacturing like blow room, carding, combing, roving frame, ring frame etc. will help the students of textile to understand the yarn manufacturing processes to produce a yarn. Emphasis is laid on the textile applications of various types of yarns. This course is developed in a way by which fundamental information will help diploma engineers apply the basic principles of yarn in textile processing to solve broad-based problems.

In spinning, the knowledge of carded and combed yarns is of prime importance to manufacture yarn from fibers. The process of drawing and combing, affect the properties of yarn produced in spinning, and furthermore, it affects fabric properties. So, it is essential for textile engineers to learn the principles of



machines involved in the drawing and combing of fibres. The processes of roving frame and ring frame is also covered which completes the production of carded and combed spun yarns from fibres. This course describes basic facts, concepts, and principles of the four important machines involved; namely Drawframe, Comber Preparatory, Comber, Roving frame and Ring frame.

Furthermore, studying Yarn Manufacture helps students appreciate the historical and cultural significance of Textiles and its applications in diverse fields, thereby fostering textile learning and a deeper understanding of the world of textiles. Hence the course provides insight to the various yarn structures and their effect on the yarn properties. By incorporating the topics like production calculations at all the stages enables the students to comprehend and approach the textile engineering problems thereby encouraging them to devise efficient and effective solutions leading to the preparation of Textile Diploma graduates, who are well-rounded, adaptable and capable of making significant contributions to the branch-specific problems.

III. COURSE OUTCOMES (COs)

Students will be able to achieve the following COs on completion of course based learning

- CO1 - Use the combing process for the production of combed yarns.
- CO2 - Use the drawframe machines for obtaining optimum fineness and evenness in the intermediate product called sliver.
- CO3 - Calculate linear speeds, drafts and production values for comber preparatory, comber and drawframe machines.
- CO4 - Use the roving frame machines for obtaining optimum fineness, evenness and strength in the intermediate product called roving.
- CO5 - Use the ring frame machines for obtaining optimum fineness, evenness and strength in the final product called the yarn.
- CO6 - Calculate linear speeds, drafts and production values for roving frame and ring frame machines.

IV. COURSE CONTENTS WITH SPECIFICATION TABLE

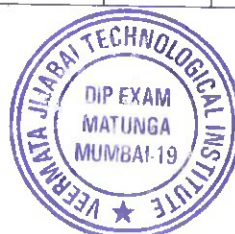
SECTION - I								
Unit & Sub-Unit	Topics/Subtopics	Hours	Marks	COs	R Level	U Level	A Level	
1	Machines for combing preparatory and Comber:	8	10	CO1	60%	20%	20%	
	1.1 Objectives of comber preparatory. Introduction to the conventional and modern comber preparatory.							
	1.2 Construction and working of the conventional and modern comber preparatory machines. Modern pre-combing machinery sequence, its							



		conventional system.						
	1.3	Principles and objects of Comber. Baer sorter and Noil%, Sequence of combing and combing cycle.						
	1.4	Important settings affecting noil percentage in combing. Defects in comber sliver, their detection, causes and remedies. Modern high-speed comber.						
2		Drawframe	14	16	CO2	13%	62%	25%
	2.1	Introduction to drawframe. Principles and objects of doubling, drafting, blending and dust removal on draw frames. Operating principle and devices - Creel, drafting arrangements, suction systems and coiling.						
	2.2	Shore hardness of the synthetic cots, their effects on the material being processed and their maintenance.						
	2.3	Drawframe settings and Autolevelling						
		2.3.1 Principles of various high drafting systems and roller weighing arrangements in drawframe. Effective length and allowances for roller setting.						
		2.3.2 Roller settings and weightings. Faults in the drafting process, its effects and remedies.						
3		Calculations and advanced topics on Comber Preparatory, Comber and Drawframe	10	9	CO3	22%	22%	56%
	3.1	Calculations of speeds, drafts and production in combing preparatory Calculations of noil%, speeds, drafts and production in combing.						
	3.2	Calculations related to settings, speeds and draft. Production calculations on draw frame.						
	3.3	Concept of short fibres in sliver and long fibres in waste. Fractionating efficiency of comber, optimum level of comber waste.						
	3.4	Developments in draw frames like Auto Levelling and stop motions.						
SECTION - II								
Unit & Sub-Unit		Topics/Subtopics	Hours	Marks	COs	R Level	U Level	A Level
4	4.1	Roving frame - Introduction	10	10	CO4	20%	60%	20%
		4.1.1 Introduction to the operation, principles, objects and study of the various						



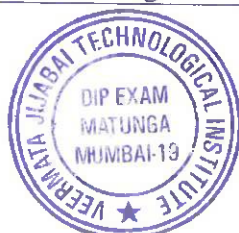
SECTION - II								
Unit & Sub-Unit		Topics/Subtopics	Hours	Marks	COs	R Level	U Level	A Level
4	4.1	Roving frame - Introduction	10	10	CO4	20%	60%	20%
		4.1.1 Introduction to the operation, principles, objects and study of the various parts of the Roving frames.						
		4.1.2 Concept of flyer and bobbin leading frames. Construction of the creel, drafting system and flyer. Spinning triangle and flyer inserts.						
	4.2	Roving frame - Construction and working						
		4.2.1 Concept of Twisting and winding. Introduction to the building mechanism, differential motions and swing motion on a roving frame.						
		4.2.2 Function of the differential mechanism, building motion and swing motion in a roving frame. Change places for processing different cottons and hanks on roving frames. Important features of modern roving frames.						
5	5.1	Ring frame - Introduction	14	15	CO5	25%	50%	25%
		5.1.1 Introduction to the operation, principles, objects and study of the various parts of the ring frame.						
		5.1.2 Construction of different types of creel, drafting arrangements, top roller weighting and fibre guiding devices. Construction of the different types of ring, travelers and spindles.						
	5.2	Ring frame - Construction and working						
		5.2.1 Functions of the traverse motions, thread guides, separators, balloon control rings, spindles, ring, traveler and traveler cleaners.						
		5.2.2 The machine drive and the function of the building mechanism. Automation and latest developments in ring frame.						
6		Calculations on roving frame and Ring frame	8	10	CO6	22%	22%	56%
		6.1 Roving frame drive and calculations related to speed, draft and production. Calculations on the change places on the roving frame.						
		6.2 Ring frame drive and calculations						



	related to speed, draft and production. Calculations of traveler speed and twist per inch in yarn.						
	6.3 Introduction and principles of compact spinning. Comparison between ring spun and Compact spun yarns.						

V. LIST OF PRACTICALS/ASSIGNMENTS/TUTORIALS

Sr. No.	Practical/Assignment/Tutorial Title	No. of Hours	Relevant COs
1	1.1 Observe the Sliver lap machine in the workshop, 1.2 Illustrate the passage of material through the sliver lap machine.	2	CO1
2	2.1 Trace the gearing diagram of the Sliver lap machine. 2.2 Calculate the speeds, intermediate drafts, total draft and production on the sliver lap machine.	2	CO3
3	3.1 Observe the Ribbon lap machine in the workshop, 3.2 Illustrate the passage of material through the ribbon lap machine.	2	CO1
4	4.1 Trace the gearing diagram of the Ribbon lap machine. 4.2 Calculate the speeds, intermediate drafts, total draft and production on the ribbon lap machine.	2	CO2
5	5.1 Observe the Comber machine in the workshop, 5.2 Illustrate the passage of material through the comber machine.	2	CO1
6	6.1 Trace the gearing diagram of the Comber. 6.2 Calculate the speeds, intermediate drafts, total draft, production and noil% on the comber machine.	2	CO3
7	7.1 Observe the Draw Frame machine in the workshop. 7.2 Illustrate the passage of material through the drawframe.	2	CO2
8	8.1 Trace the gearing diagram of the Drawframe. 8.2 Calculate the speeds, intermediate drafts, total draft and production on the drawframe.	2	CO3
9	9.1 Calculate the roller gauge setting on the draw frame and perform the roller setting on the draw frame based on the results of the calculation. Staple length of cotton assumed to be 40 mm. 9.2 Illustrate the roller setting on the drawframe.	2	CO2
10	10.1 Observe the Roving Frame machine in the workshop. 10.2 Illustrate the passage of material through the roving frame.	2	CO4
11	11.1 Trace the gearing diagram of the roving frame. 11.2 Calculate the speeds, intermediate drafts, total draft, production and change places on the roving frame.	2	CO6
12	12.1 Observe the differential motion, swing motion and building mechanism on the roving frame machine in the workshop. 12.2 Enlist the functions of the three mechanisms observed on the roving frame.	2	CO4
13	13.1 Observe the Ring Frame machine in the workshop. 13.2 Illustrate the passage of material through the ring frame.	2	CO5



14	14.1 Trace the gearing diagram of the ring frame. 14.2 Calculate the speeds, intermediate drafts, total draft, production and change places on the ring frame.	2	CO6
15	15.1 Observe the lappets, ring rail, spindle, rings and travelers on the Ring Frame machine in the workshop. 15.2 Enlist the functions and settings of the parts observed on the ring frame.	2	CO5
<p>Note :</p> <p>1.15 practicals based on CO1, CO2, CO3, CO4, CO5 and CO6.</p> <p>2. Practicals shall be engaged in the batch size of 20 to 30 students.</p> <p>3. Each experiment shall carry 1.5 mark each including half mark for timely completion of each experiment. The remaining 2.5 marks are reserved for the complete and timely final submission at the end of the term.</p>			

VI. ASSESSMENTS METHODOLOGIES /TOOLS

Formative assessment (Assessment for Learning)

- Midterm Test Exam
- Term Work
- Seminar/Presentation

Summative Assessment (Assessment of Learning)

- End Term Exam
- Practical Performance in End Sem Examination

VII. SUGGESTED COS-POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes * (PSOs)	
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO- 1	PSO- 2
CO1	3	2	2	2	2	2	3	3	2
CO2	3	2	2	3	2	2	3	3	2
CO3	3	3	3	3	2	2	3	3	2
CO4	3	3	3	3	2	2	3	3	2
CO5	3	3	3	3	2	2	3	3	2
CO6	3	3	3	3	3	2	3	3	3

Legends :- High:03, Medium:02, Low:01, No Mapping: -
 PSO1: Ability to apply knowledge of selecting raw materials, machines and process parameters using standard methods and engineering tools for designing solutions to meet specific needs of the textile industry.



PSO2: Understand the impact of textile processes in societal and environmental context and demonstrate the knowledge for sustainable development through teamwork and effective communication for lifelong learning.

VIII. SUGGESTED LEARNING MATERIALS TEXTBOOKS/REFERENCE BOOKS/WEBSITES

Sr. No	Author	Title	Publisher
1	Werner Klein	Spinning Preparation- Volume 3&4	The Textile Institute
2	Andrea Wynne	The Motivate Series	Macmillan Education Ltd.

IX. LEARNING WEBSITES & PORTALS

Sr.No	Link / Portal	Description
1	https://onlinecourses.swayam2.ac.in/cec23_te01/preview	Online Learning Initiatives by SWAYAM
2	https://www.youtube.com/@aartibaliga6490/playlists	Yarn Manufacture



Curriculum Coordinator



Head of the Department



Dean Diploma

BOS VJTI Approval Dt. 10/07/2024



DIPLOMA PROGRAMME	: DIPLOMA IN TEXTILE ENGINEERING
PROGRAMME CODE	: DTE
SEMESTER	: THIRD
COURSE TITLE	: FABRIC MANUFACTURE II
COURSE CODE	: 236TE32

I. TEACHING AND EXAMINATION SCHEME

TEACHING SCHEME						EXAMINATION SCHEME												
CL	TL	LL	Self-learning	CR	PAPER HRS	FA-TH (MST)	SA-TH (ESE)			TOTAL		Based on LL & TL Practical				Based on Self-learning		TOTAL MARKS
							Max	Min	Max	Min	FA-PR (CA)		SA-PR (PR/OR)		SLA			
											Max	Min	Max	Min	Max	Min		
4	-	2	-	3	3	30	70	28	100	40	25	10	25#	10	-	-	150	

Total IKS Hrs for Sem: 2 Hrs

Abbreviations: CL- Classroom Learning, TL- Tutorial Learning, LL-Laboratory Learning, FA - Formative Assessment, SA -Summative Assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment

Legends: @ Internal Assessment, # External Assessment, *# Online Examination, @\$ Internal Online Examination

Course Category: Discipline Specific Course Core (DSC): 3, Discipline Specific Elective (DSE): 0, Value Education Course (VEC): 1, Intern/Apprentice/Project/Community (INP): 0, Ability Enhancement Course (AEC): 2, Skill Enhancement Course (SEC) : 2, Generic Elective (GE) : 0

II. RATIONALE

The knowledge of weaving preparatory processes, Dobby, Jacquard and Drop box motions is very essential. Sizing is the last operation in the preparatory process. To achieve higher productivity and improved fabric quality, it is desired to prepare warp end sufficiently strong enough to withstand the stress & strain during weaving operation. Dobby and Jacquards are shedding mechanisms used to produce larger design repeats. This course imparts knowledge of basic technology of sizing process and is exposed to detailed knowledge of doobby, jacquard and drop box motion. This is the most important part of the fabric forming process which produces fancy



designs by using different types of dobbies and jacquard mechanism. Society requires large quantity and quality with different designs of fabrics

III. COURSE OUTCOMES (COs)

Students will be able to achieve the following COs on completion of course based learning

- CO1 – Select sizing ingredients for warp yarn sizing Identify different zones of sizing machine and their functions
- CO2 – Define the objects of Looming, Drawing-in and leasing
- CO3 – Understand the principles, working, construction and settings on used in different types of dobbies.
- CO4 – Apply the principles of different types of Jacquards to produce different designs of fabric.
- CO5 – Select weft patterning methods used on automatic looms.
- CO6 – Understand the principle, construction and working of Leno loom and Terry Pile loom.

IV. COURSE CONTENTS WITH SPECIFICATION TABLE

SECTION - I								
Unit & Sub-Unit	Topics/Subtopics	Hours	Marks	COs	R Level	U Level	A Level	
1	Sizing: Mechanism and Process	30	31	CO1	20%	30%	50%	
1.1	IKS- History of sizing process							
1.2	Objects of sizing, size ingredients and their Properties, Preparation of size paste and equipments, Mixing process of sizing ingredients and its importance. Properties of size paste.							
1.3	Techniques of sizing process: hank sizing, ball warp sizing, slasher sizing. Multi cylinder sizing machine.							
1.4	Types of creel, their functions, merits and demerits. Leasing the warp.							
1.5	Size box (Conventional & Modern) ,their elements in sow box and their functions							
1.6	Methods of drying- Two cylinder , Multi cylinder , Hot air , Infra Red drying							
1.7	Head stock: Dry splitting, types of comb, measuring and marking motion, winding, beam pressing motion, Drag roller. Concepts of wet splitting and dry splitting, Single end sizing concept.							



	1.8	Various control devices and their importance on Sizing machine. Size level control , Temperature control , Moisture control , Stretch control, Factors affecting size pick up. Migratory ends and lappers during sizing. Quality of Sized Beams and Package defects in sizing, Modern developments in sizing machine						
	1.9	Sizing calculations: Production, Efficiency, Pick up %, Stretch %						
2		Looming, Drawing-in and leasing	2	4	CO2	20%	20%	60%
	2.1	Looming, drawing and leasing function, Drawing-in methods,						
SECTION - II								
Unit & Sub-Unit	Topics/Subtopics				COs	R Level	U Level	A Level
3		Dobby	10	11	CO3	40%	40%	20%
	3.1	Scope and limitations, Types of Dobbies, Keighley dobbie – its working, construction, setting. Different methods of pegging lags.						
	3.2	Development in dobbies- Cam dobbie, paper cam dobbie, their construction and working. Crank loom, Positive Cam						
	3.3	Electronic dobbie: Electronic cam dobbie, Modern features of Electronic dobbie.						
4		Jacquards	12	13	CO4	40%	40%	20%
	4.1	Scope and limitations. Different parts of jacquards and their importance. Principle and working of jacquards (Single lift single cylinder, Double lift single cylinder, Double lift double cylinder) and their limitations.						
	4.2	Drive to the jacquard, System of harness mounting, Different types of harness ties, Piano card cutting machine. Casting out in jacquards.						
	4.3	Modern fine pitch and course pitch jacquards, their construction and working. Double cloth jacquard its working and construction, Cross border Jacquard its working and construction,						
	4.4	Electronic Jacquards, Modern features of Electronic Jacquard.						



5		Weft Patterning	8	8	CO5	40%	40%	20%
	5.1	Conventional methods of weft patterning and their limitations, Cowburn and pecks multiple box, its construction and working. Different types of multiple box mechanisms, card saving device,						
	5.2	Simple pattern chain and problems based on the pattern chains						
6		Leno Loom and Terry Pile Loom Mechanism	2	3	CO6	40%	40%	20%
	6.1	Construction and working of Leno loom, Construction and working of Terry Pile loom						

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

V. LIST OF PRACTICALS/ASSIGNMENTS/TUTORIALS

Sr. No.	Practical/Assignment/Tutorial Title	No. of Hours	Relevant COs
1	Observe the passage of warp sheet and drive to sizing machine on Slasher sizing machine	2	CO1
2	Observe the Sow box, Drying cylinder, Steam trap, Measuring and marking motion on Slasher sizing machine	2	CO1
3	Observe and perform the setting on Keighley Dobby	2	CO3
4	Observe Staubli cam dobbie for the construction, working, timing, pick-finding device.	2	CO3
5	Observe Zang dobbie for the construction, working, timing, pick-finding device.	2	CO3
6	Observe construction and working of Single lift single cylinder jacquard.	2	CO4
7	Observe construction and working of Double lift single cylinder jacquard.	2	CO4
8	Observe construction and working of Double lift double cylinder Jacquard.	2	CO4
9	Observe Cross-border jacquard and Double cloth Jacquard.	2	CO4
10	Observe Cowburn and Peck box motion for construction, working, timing and card saving device.	2	CO5
11	Observe Pick –at – will mechanism on Zang loom.	2	CO5
12	Observe drop-box motion on Zang loom.	2	CO5
13	Observe and Prepare pegging lattices and perform paper card punching.	2	CO4
14	Observe and perform Jacquard card punching and lacing.	2	CO4
15	Prepare Jacquard design on point paper. (Group Activity)	2	CO4
16	Visit to a Textile Industry	2	All COs

VI. ASSESSMENTS METHODOLOGIES /TOOLS

Formative assessment (Assessment for Learning)

- Tutorials
- Midterm Test Exam



- Self-learning
- Term Work
- Seminar/Presentation

Summative Assessment (Assessment of Learning)

- End Term Exam
- Tutorial Performance

VII. SUGGESTED COS-POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)	
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO- 1	PSO- 2
CO1	3	1	2	2	1	1	2	3	2
CO2	3	2	3	-	-	1	2	3	1
CO3	3	1	2	1	1	1	2	3	1
CO4	3	1	2	1	1	1	2	3	1
CO5	3	2	3	2	-	1	2	3	1

Legends:- High:03, Medium:02, Low:01, No Mapping: -
 PSO1: Ability to apply knowledge of selecting raw materials, machines and process parameters using standard methods and engineering tools for designing solutions to meet specific needs of the textile industry.
 PSO2: Understand the impact of textile processes in societal and environmental context and demonstrate the knowledge for sustainable development through teamwork and effective communication for lifelong learning.

VIII. SUGGESTED LEARNING MATERIALS TEXTBOOKS/REFERENCE BOOKS/WEBSITES

Sr. No	Author	Title	Publisher
1	D B Ajgaonkar, M. K. Talukdar and V. R. Wadekar	Sizing Material, machine and process	Mahajan Publishers Pvt., Ltd., Ahmedabad. 2 nd edition
2	K. T. Aswani	Fancy weaving Mechanism	Mahajan Publishers, 1990
3	M. K. Talukdar, P.K. Sriramulu, D.B Ajgaonkar	Weaving Machines, Mechanism, Management	Mahajan Publishers Private Limited, Ahmedabad, edition 1998



4	R. Marks, A. T. C. Robinson	Principles of weaving	The Textile Institute, Manchester
5	P. R. Lord, M.H. Mohamed	Weaving : Conversion of yarn to fabric	Merrow publishing Co. Ltd., England, 2 nd edition, 1988
6	P. K. Banerjee	Principles of fabric formation	CRC Press, 2014
7	M. C. Paliwal, P. D. Khimothi	Process control in weaving	ATIRA, 1974.

IX. LEARNING WEBSITES & PORTALS

Sr.No	Link / Portal	Description
1	http://nptel.ac.in/course.php	


Curriculum Coordinator


Head of the Department


Dean Diploma

BOS VJTI Approval Dt. 10/07/2024



DIPLOMA PROGRAMME	: DIPLOMA IN TEXTILE ENGINEERING
PROGRAMME CODE	: DTE
SEMESTER	: THIRD
COURSE TITLE	: TEXTILE TESTING-I
COURSE CODE	: 236TE-33

1. TEACHING AND EXAMINATION SCHEME

TEACHING SCHEME						EXAMINATION SCHEME												
CL	TL	LL	Self-learning	National learning hours/week	CR	Paper Duration (hrs)	FA-TH (MST)	SA-TH (ESE)		TOTAL		Based on LL & TL Practical				Based on Self-learning		TOTAL MARKS
								Max	Max	Min	Max	Min	FA-PR (CA)		SA-PR (PR/OR)		SLA	
							Max						Min	Max	Min	Max	Min	
3	--	3	-	6	3	3	30	70	28	100	40	25	10	25#	10	-	-	150

Total IKS Hrs for Sem : 2 Hrs

Abbreviations: CL- Classroom Learning , TL- Tutorial Learning, LL-Laboratory Learning, FA - Formative Assessment, SA -Summative Assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment

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Course Category: Discipline Specific Course Core (DSC) : 3, Discipline Specific Elective (DSE) : 0, Value Education Course (VEC) : 1, Intern/Apprentice/Project/Community (INP) : 0, Ability Enhancement Course (AEC) : 2, Skill Enhancement Course (SEC) : 2, Generic Elective (GE) : 0

II. COURSE OUTCOMES (COs)

Students will be able to achieve the following COs on completion of course based learning

- CO1 – Understand the objective and standards of textile testing
- CO2 –Understand the implementation of statistics in textile testing
- CO3 - Understand the different types sampling for fibre, yarn and fabric testing.
- CO4 –Understand the effect of moisture and importance of fiber properties
- CO5 –Understand the yarn dimensions and yarn properties.
- CO6 –Understand various terminologies and principles of testing and various fiber / yarn testing

instruments

I. III. COURSE CONTENTS WITH SPECIFICATION TABLE

COURSE CONTENTS WITH SPECIFICATION TABLE							
SECTION - I							
Unit & Sub-Unit	Topics/Subtopics	Hours	Marks	COs	R Level	U Level	A Level
1	Introduction to textile testing, testing standards and objective.	06	10	CO1	40%	40%	20%
1.1	Testing quality schemes like wool mark, ISEmark and ASTM Standards.						
1.2	Classification of textile fibre. Fibre dimension and quality testing Cotton fibre grading, Trash %.						
1.3	Essential and desired properties of textile fibre/yarn.						
2	Elements in statistics of testing: Number of test to be carried out, concept of S.D.,C.V. Mean, Mode Median, Frequency distribution.	08	12	CO2	40%	40%	20%
2.1	Calculation based on all S.D., CV%						
2.2	Comparison of frequency distribution, normal distribution, standard error						
3	Testing sampling: Selection of samples for testing, Sampling techniques.	10	13	CO3	40%	40%	20%
3.1	Types of sampling, Fibre sampling methods from combed slivers, roving and yarns.						
3.2	Fabric Sampling techniques.						
SECTION - II							
Unit & Sub-Unit	Topics/Subtopics	Hours	Marks	COs	R Level	U Level	A Level
4	Introduction to regain and moisture content and its measurement. Measurement of atmospheric condition, regain humidity relations & hysteresis, effect of regain on fibre properties ,	06	10	CO4	40%	40%	20%
4.1	Fibre Fineness testing by various methods						



	4.2	Fibre length and maturity testing and their importance.						
	4.3	single Fibre strength and Bundle strength of fibre testing,						
5		Yarn structure and dimension testing : Yarn numbering system, yarn count measurement, Yarn diameter testing, relation between yarn diameter and count,	08	12	CO5	40%	40%	20%
	5.1	Twist: importance, effect of twist on various properties of yarn, twist measurement methods.						
	5.2	Yarn hairiness, measurement by Uster tester-3, Yarn evenness U%, long term, short term irregularity of yarn & its measurement.						
6		Terminology and principles of testing: Terminologies and definitions employed in measurement of tensile properties of textile.	10	13	CO5	40%	60%	-
	6.1	Principles of textile testing instruments CRL,CRE& CRT, pendulum lever principal with CRT, The balance principle, inclined plane principle.						
	6.2	Instron yarn, single yarn strength, Yarn CSP testing.						
Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms’s Revised Taxonomy).								

IV.LIST OF PRACTICALS/ASSIGNMENTS/TUTORIALS

Sr. No.	Practical/Assignment/Tutorial Title	No. of Hours	Relevant COs
1	Study of microscope and fibre identification. Convolutions and Ribbon width.	03	6
2	Measurement of Mean fibre length (oiled plate method) and other parameters of length variation.	03	6
3	Baer Sorter and fibre length and Weight per unit length of fibres measurement.	03	6
4	Study of Shirley Analyzer- Cleaning efficiency of Blow room & Card- Raw cotton, Lap & Sliver testing.	03	6



5	Measurement of Crimp of fibre – Wool.	03	6
6	Evaluation of Maturity coefficient microscopically.		6
7	Measurement of fibre fineness by Shirley fineness tester.	03	6
8	Study of Shirley moisture meter. Evaluation of moisture regain in fibres, Swelling of fibers	03	6
9	Measurement of bundle strength of fibres by Stelometer	03	6
10	Measurement of Count by lea method and lea CSP, Tex number and work of rupture of yarn.	03	6
11	Measurement of Single thread strength (Good Brand)	03	6
12	Measurement of yarn Twist %	03	6
13	Measurement of yarn count.	03	6

V. ASSESSMENTS METHODOLOGIES / TOOLS

Formative assessment (Assessment for Learning)

- Practical's
- Mid-term Test Exam
- Self-learning
- Term Work
- Seminar/Presentation

Summative Assessment (Assessment of Learning)

- End Term Exam
- Practical Performance

VI. SUGGESTED COS-POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes * (PSOs)	
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO- 1	PSO- 2
CO1	3	-	-	2	1	1	1	2	1
CO2	-	3	2	2	-	1	1	2	2
CO3	2	-	2	1	1	1	1	3	1



CO4	3	2	2	1	2	-	1	3	1
CO5	3	3	2	1	2	-	1	3	1
CO6	3	2	-	2	-	2	1	3	1

Legends :- High:03, Medium:02, Low:01, No Mapping: -

PSO1: Ability to apply knowledge of selecting raw materials, machines and process parameters using standard methods and engineering tools for designing solutions to meet specific needs of the textile industry.

PSO2: Understand the impact of textile processes in societal and environmental context and demonstrate the knowledge for sustainable development through teamwork and effective communication for lifelong learning.

VII. SUGGESTED LEARNING MATERIALS TEXTBOOKS/REFERENCE BOOKS/WEBSITES

Sr. No	Author	Title	Publisher
1	B. P. Saville, 1999,	1. Physical Testing of Textiles	Woodhead Publishing Ltd.,U. K.
2	J. E. Booth,	Principles of Textile Testing	1961, Heywood Books, London.
3	Edited by V. K. Kothari,	Testing and Quality Management –	IAFL Publications, New Delhi, 2005
4	P. Angappan, R. Gopalakrishnan	Textile Testing	S.S.M.I.T.T. Staff and studen' Co-op Stores Ltd.s
5	E. B. Grover and D. S. Hamby, 1960.	Suggested Reading: Handbook of Textile Testing and Quality Control	

VIII. LEARNING WEBSITES & PORTALS

Sr.No	Link / Portal	Description
1	https://archive.nptel.ac.in/courses/116/102/116102029/	


Curriculum Coordinator


Head of the Department


Dean Diploma

BOS VJTI Approval Dt. 10/07/2024



DIPLOMA PROGRAMME	: DIPLOMA IN TEXTILE ENGINEERING
PROGRAMME CODE	: DTE
SEMESTER	: THIRD
COURSE TITLE	: TEXTILE CHEMISTRY-I
COURSE CODE	: 236TE34

I. TEACHING AND EXAMINATION SCHEME

TEACHING SCHEME					EXAMINATION SCHEME												
CL	TL	LL	Self-learning	CR	PAPER HRS	FA-TH (MST)	SA-TH (ESE)		TOTAL		Based on LL & TL Practical				Based on Self-learning		TOTAL MARKS
							Max	Min	Max	Min	FA-PR (CA)		SA-PR (PR/OR)		SLA		
						Max					Min	Max	Min	Max	Min	Max	
3	-	3	2	4	3	30	70	28	100	40	25	10	25#	10	25	10	175

Total IKS Hrs for Sem.: 2 Hrs

Abbreviations: CL- Classroom Learning, TL- Tutorial Learning, LL-Laboratory Learning, FA - Formative Assessment, SA -Summative Assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment

Legends: @ Internal Assessment, # External Assessment, *# Online Examination, @\$ Internal Online Examination

Course Category: Discipline Specific Course Core (DSC) : 3, Discipline Specific Elective (DSE) : 0, Value Education Course (VEC) : 1, Intern/Apprentice/Project/Community (INP) : 0, Ability Enhancement Course (AEC) : 2, Skill Enhancement Course (SEC) : 2, Generic Elective (GE) : 0

II. Course Objectives:

Students should able to

- 1) Study fibres in details
- 2) Preparatory processing treatment for natural as well as synthetic fibre.
- 3) Understand Fabric preparatory processes like desizing, scouring, bleaching and Mercerizing.
- 4) Study Fabric processing machineries.

III. COURSE OUTCOMES (COs)



Students will be able to achieve the following COs on completion of course based learning

CO1	Acquire basic knowledge about fibres
CO2	Understand the polymerization and man-made fibre manufacturing
CO3	Study of Testing and identification of fibre
CO4	Select the preparatory process
CO5	Know the Machines used for the preparatory process
CO6	Understand the need of eco-friendly processing.

IV. COURSE CONTENTS WITH SPECIFICATION TABLE

SECTION-I								
Unit & Sub-Unit		Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
1		Fibre study	06	10	CO1	30%	40%	30%
	1.1	Definition of Fibre and Polymers, Degree of polymerization Essential and desirable properties of a fibre						
	1.2	Classification of fibres based on Chemical Composition Brief Chemistry of Natural Cellulosic and Protein Fibers						
2		Natural fibres and synthetic Fibres	10	14	CO2	30%	40%	30%
	2.1	Morphology of natural fibres like Cotton/wool/silk, Physical, chemical properties and applications of natural fibres						
	2.2	Raw materials for manufacturing Of man-made fibres like viscose rayon, polyester, nylon and acrylic						



	2.3	Physical and chemical properties of man-made fibres and their applications						
3		Testing of Fibres and Blend analysis	8	11	CO3	30%	40%	30%
	3.1	Identification of natural and synthetic fibres by microscopy, burning test, Chemical test						
	3.2	Introduction to blend and blend analysis						
SECTION-II								
Unit & Sub-Unit	Topics/Sub-topics		Hours	Marks	CO	R Level	U Level	A Level
4		Preparatory processing	10	16	CO4	20%	40%	40%
	4.1	Sequence of preparatory processing Importance of Grey inspection, Shearing and cropping, Singing, De-sizing, Scouring, Bleaching, Mercerization and Liquid Ammonium Treatment on Cotton, Semi-synthetic material and Synthetic material (Objective, Principle, Chemicals used, and process)						
	4.2	Testing of efficiency of preparatory processes. The efficiency of de-sizing, scouring, bleaching and mercerization.						
5		Machines used for the preparatory process	9	12	CO5	30%	40%	30%
	5.1	Batch Machine-Winches, Jiggers, Kiers, J-box, Jet (Working principle, Line Diagram, Advantages and Disadvantages)						
	5.2	Semi-Continuous & Continuous processing Machineries (Working principle, Line Diagram, Advantages and Disadvantages)						
6		Eco-friendly processing	5	7	CO6	30%	40%	30%

6.1	Eco-friendly processing of textiles. Eco-friendly aspect of de-sizing, scouring and bleaching. Combined process of pre-treatment						
6.2	Introduction to sustainable textile processing technology like waterless e-control, waterless technology, use of super-critical carbon dioxide						

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

V. LIST OF PRACTICALS/ASSIGNMENTS/TUTORIALS

Sr. No	Practical/Assignment	Hours	CO
1	Estimation of alkali mixture	3	CO7
2	Estimation of hypochlorites	3	CO7&CO8
3	Estimation of hydrogen peroxide	3	CO7
4	De-sizing of cotton with acid, enzymes	3	CO7&CO8
5	Scouring of cotton	3	CO7
6	Bleaching of cotton with hypochlorite	3	CO7&CO8
7	Bleaching of cotton with hydrogen peroxide	3	CO8
8	One-Bath Scouring and Bleaching	3	CO7&CO8
9	Determination of each fibre content% in a blend fabric.	3	CO7
10	Identification of fibres	3	CO7

VI. ASSESSMENTS METHODOLOGIES /TOOLS

Formative assessment (Assessment for Learning)



- Tutorials
- Midterm Test Exam
- Self-learning
- Term Work
- Seminar/Presentation

Summative Assessment (Assessment of Learning)

- End Term Exam
- Tutorial Performance

VII. SUGGESTED COS-POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)	
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO- 1	PSO- 2
CO1	3	3	1	2	2	1	2	3	1
CO2	3	2	1	2	1	1	1	3	1
CO3	3	3	2	3	1	2	3	2	1
CO4	3	2	1	1	2	1	1	2	1
CO5	1	2	2	2	1	1	1	3	1
CO6	2	3	2	1	3	1	1	2	3

Legends:- High:03, Medium:02, Low:01, No Mapping: -

PSO1: Ability to apply knowledge of selecting raw materials, machines and process parameters using standard methods and engineering tools for designing solutions to meet specific needs of the textile industry.
 PSO2: Understand the impact of textile processes in societal and environmental context and demonstrate the knowledge for sustainable development through teamwork and effective communication for lifelong learning.

VIII. SUGGESTED LEARNING MATERIALS TEXTBOOKS/REFERENCE BOOKS/WEBSITES

Sr.No	Author	Title	Publisher
1	Dr. V.A.Shenai	Technology of Bleaching	Sevak Publications, Mumbai, 1 edition, 1984
2	Dr. V.A.Shenai	Chemistry of fibres	Sevak Publications, Mumbai, 1 st edition, 1971
3	S.P.Mishra	Textbook of Fibre science and Technology	New Age International Publications, New Delhi, 1 st edition, 2000
4	J. R. Modi	Tablet on chemical processing	Textile Association of India, 2005.
5	Dr. H. V. S. Murthy	Introduction to Textile Fibres	Textile Association of India, 1987
	Editor-Mody	Chemical Processing of Cotton and Polyester-Cotton blends	Textile Association, Ahmedabad

Detambar

Curriculum Coordinator

Balrao

Head of the Department

SH

Dean Diploma

BOS VJTI Approval Dt. 10/07/2024



DIPLOMA PROGRAMME	: DIPLOMA IN TEXTILE ENGINEERING
PROGRAMME CODE	: DTE
SEMESTER	: THIRD
COURSE TITLE	: GARMENT TECHNOLOGY
COURSE CODE	: 236TE35

I. TEACHING AND EXAMINATION SCHEME

TEACHING SCHEME					EXAMINATION SCHEME												
CL	TL	LL	Self-learning	CR	PAPER HRS	FA-TH (MST)	SA-TH (ESE)		TOTAL		Based on LL & TL Practical				Based on Self-learning		TOTAL MARKS
							Max	Min	Max	Min	FA-PR (CA)		SA-PR (PR/OR)		SLA		
											Max	Min	Max	Min	Max	Min	
3	-	3	2	4	3	30	70	28	100	40	25	10	25#	10	25	10	175

Total IKS Hrs for Sem : 2 Hrs

Abbreviations: CL- Classroom Learning , TL- Tutorial Learning, LL-Laboratory Learning, FA - Formative Assessment, SA -Summative Assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment

Legends: @ Internal Assessment, # External Assessment, *# Online Examination, @\$ Internal Online Examination

Course Category: Discipline Specific Course Core (DSC) : 3, Discipline Specific Elective (DSE) : 0, Value Education Course (VEC) : 1, Intern/Apprentice/Project/Community (INP) : 0, Ability Enhancement Course (AEC) : 2, Skill Enhancement Course (SEC) : 2, Generic Elective (GE) : 0

II. RATIONALE

This course provides knowledge regarding garment manufacturing technology. With increased production demand, industries have adopted scientific approach for automation in machines and processes. In this course students will be able to develop skills to select



fabric, prepare efficient marker planning to minimize waste. They will also be able to set operation sequence and material handling. Essential efforts are made to satisfy industrial needs by this course.

III. COURSE OUTCOMES (COs)

Students will be able to achieve the following COs on completion of course based learning

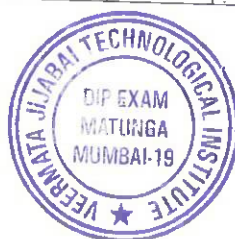
- CO1 – Give overview of garment Industry and describe the process sequence for converting fabric into garment
- CO2 – Apply pattern making and CAD/CAM softwares
- CO3 – Describe Spreading and cutting of Garment Manufacturing
- CO4 – Demonstrate the sewing machine working and various stitching parameters and seam type
- CO5 – Know the advance technique of joining the materials other than sewing method
- CO6 – Identify the inventory requirements for garments and garment inspection systems

IV. COURSE CONTENTS WITH SPECIFICATION TABLE

SECTION – I								
Unit & Sub-Unit	Topics/Subtopics	Hours	Marks	COs	R Level	U Level	A Level	
1	Garment Manufacturing	4	6	CO1	40%	40%	20%	
	1.1	IKS- History of Garment Manufacturing						
	1.2	Introduction and Indian Apparel Industry						
	1.3	Various department in Garment Industry						
	1.4	Garment Industry process Sequence						
2	Pattern Making	8	12	CO2	40%	40%	20%	
	2.1	Introduction and basics of Garment Construction.						
	2.2	Terminologies related to drafting and pattern making, Basic bodies block						
	2.3	Types of drafting its advantages and disadvantages						
	2.4	Methods of making basic patterns, grading and its type, Size and Size chart						
	2.5	Application of CAD/CAM in Garment Manufacturing.						



3		Spreading & cutting	12	17	CO3	40%	40%	20%
	3.1	Spreading and Workroom situation- Stages from raw material to final cutting of garment, Production planning, Spreading, Requirements of spreading, Methods of Spreading with advantages and disadvantages, Marker making, Marker efficiency, Factors affecting marker efficiency, Duplicating methods its advantage and Disadvantage						
	3.2	Cutting-Introduction, Process and Machine, Types and Function of cutting machine-Straight knife, Round knife, Band knife, Notches, Die cutting machine, Laser cutting machine, Computerized cutting machine, Defects in cutting and its remedies						
SECTION - II								
Unit & Sub-Unit	Topics/Subtopics		Hour s	Mark s	COs	R Level	U Level	A Level
4		Garment Sewing	10	15	CO4	40%	40%	20%
	4.1	Introduction to sewing m/c and its parts, Different types of Sewing m/c and its uses, Different types of feed mechanisms. Sewing Machine Needle,						
	4.2	Sewing properties of Seam, Seam types, Stitch types						
	4.3	Thread packages, Sewing thread and its properties, Seam performance, Sewing problem its causes and remedies,						
	4.4	Testing for Sewability and tailorability, Thread calculation and its consumption.						
5		Pressing and Fusing	6	8	CO5	40%	40%	20%
	5.1	Introduction to Pressing, Classification, Construction of fusible, Types of fusing in garments.						
	5.2	Fusing process, Defects, Requirements and Quality control in Fusing						
6		Accessories and Garment Inspection	8	12	CO6	40%	40%	20%



6.1	Inventory used labels, Care label, Motifs Lining, Interlining, wadding, Lace, Elastic and Braid, Shoulder pad, Zip fasteners, Buttons.						
6.2	Introduction to hand embroidery, Basic stitch families, Introduction to machine embroidery and various types of machines used, Computerized embroidery.						
6.3	Inspection Methods and grading System, Final Inspection, Method of sample collection, AQL, Defects, Inspection procedure.						

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

V. LIST OF PRACTICALS/ASSIGNMENTS/TUTORIALS

Sr. No.	Practical/Assignment/Tutorial Title	No. of Hours	Relevant COs
1	Draw basic patterns of garment elements on paper.	3	CO2
2	Draw basic croquis.	3	CO2
3	Prepare the Bodice block on paper and stitch a bodice, stitching of all elements of trouser and skirt	3	CO2
4	Draw marker plan for kids wear on paper.	3	CO2
5	Prepare marker plan for men’s wear on paper.	3	CO2
6	Prepare marker plan for female wear on paper.	3	CO2
7	Observe pattern making, marker planning with grading.	3	CO2
8	Draw different stitches and seams as per norms.	3	CO2
9	Observe the sewability and calculate seam efficiency of given fabric.	3	CO2
10	Observe Rich piece software of garment	3	CO2
11	Draw various elements marker plan of garment using Rich piece software.	3	CO2
12	Visit to garment factory and to prepare report on flow and processes seen	3	CO1

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

VI. ASSESSMENTS METHODOLOGIES /TOOLS

Formative assessment (Assessment for Learning)

- Tutorials
- Midterm Test Exam



- Self-learning
- Term Work
- Seminar/Presentation

Summative Assessment (Assessment of Learning)

- End Term Exam
- Tutorial Performance

VII. SUGGESTED COS-POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes * (PSOs)	
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2
CO1	1	3	-	1	-	2	1	3	-
CO2	3	3	1	-	-	-	2	3	-
CO3	2	3	2	1	1	2	-	1	1
CO4	3	3	2	1	2	2	2	1	1
CO5	3	3	2	2	2	-	2	1	-
CO6	3	3	3	2	-	-	-	1	-

Legends :- High:03, Medium:02, Low:01, No Mapping: -

PSO1: Ability to apply knowledge of selecting raw materials, machines and process parameters using standard methods and engineering tools for designing solutions to meet specific needs of the textile industry.

PSO2: Understand the impact of textile processes in societal and environmental context and demonstrate the knowledge for sustainable development through teamwork and effective communication for lifelong learning.

VIII. SUGGESTED LEARNING MATERIALS TEXTBOOKS/REFERENCE BOOKS/WEBSITES

Sr. No	Author	Title	Publisher
1	Harold Carr and Barbara Latham	The Technology of Clothing Manufacture	Blackwell Science Ltd. Second Edition, 1994
2	Aldrich W	Metric Pattern Cutting	Book Service, New Delhi, 1998
3	Eiri Board	Handbook of Garment Manufacturing Technology	Engineers India Research Instt, 2003



4	Reader's Digest	Complete guide to embroidery stitches	Reader's Digest
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XI. LEARNING WEBSITES & PORTALS

Sr.No	Link / Portal	Description
1	https://scribed.com/Document/306411147/Pattern-Alteration-Sewing	Garment Fit – Problems and Remedies


Curriculum Coordinator


Head of the Department


Dean Diploma

BOS VJTI Approval Dt. 10/07/2024



DIPLOMA PROGRAMME	: DIPLOMA IN TEXTILE ENGINEERING
PROGRAMME CODE	: DTE
SEMESTER	: THIRD
COURSE TITLE	: ADVANCE EXCEL AND DATA ANALYSIS
COURSE CODE	: 236TE36

I. TEACHING AND EXAMINATION SCHEME

TEACHING SCHEME					EXAMINATION SCHEME												
C L	T L	L L	Self - lear ning	CR	PAPER HRS	FA-TH (MST)	SA-TH (ESE)		TOTAL		Based on LL & TL Practical				Based on Self- learning		TOTAL MARKS
						Max	Max	Min	Max	Min	FA-PR (CA)		SA-PR (PR/OR)		SLA		
											Max	Min	Max	Min	Max	Min	
-	-	2	2	2	-	-	-	-	-	-	25	10	-	-	25	10	50

Total IKS Hrs for Sem.: 0 Hrs

Abbreviations: CL- Classroom Learning, TL- Tutorial Learning, LL-Laboratory Learning, FA - Formative Assessment, SA -Summative Assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment

Legends: @ Internal Assessment, # External Assessment, *# Online Examination , @\$ Internal Online Examination

Course Category: Discipline Specific Course Core (DSC) : 3, Discipline Specific Elective (DSE) : 0, Value Education Course (VEC) : 1, Intern/Apprentice/Project/Community (INP) : 0, Ability Enhancement Course (AEC) : 2, Skill Enhancement Course (SEC) : 2, Generic Elective (GE) : 0

II. COURSE OUTCOMES (COs)

Students will be able to achieve the following COs on completion of course based learning

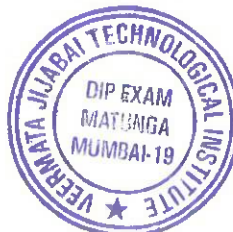
- CO1 – Navigate the Excel user interface
- CO2 – Format spreadsheets
- CO3 - Perform basic calculations with formulas and functions



- CO4 – Manage datasets and extract useful data and
- CO5 – Create charts and graphs from data

III. COURSE CONTENTS WITH SPECIFICATION TABLE

SECTION - I								
Unit & Sub-Unit	Topics/Subtopics	Hours	Marks	COs	R Level	U Level	A Level	
1	Excel User Interface and Terminology	04	04	CO1				
	1.1 Navigating and Selecting data, View options	1	1	CO1	40%	40%	20%	
	1.2 Data Entry, Data Types	2	2	CO1	40%	40%	20%	
	1.3 Editing and Deleting, Copy and Paste, Fill handle	1	1	CO1	40%	40%	20%	
2	Formatting	04	04	CO2				
	2.1 Borders, Alignment Tools, Format Painter	2	02	CO2	40%	40%	20%	
	2.2 Number Formats, Styles and Themes	2	02	CO2	40%	40%	20%	
3	Working with Data	04	07	CO2				
	3.1 Managing Row and Columns, Find and Replace	1	01	CO2	20%	40%	40%	
	3.2 Filtering and Sorting	1	01	CO2	20%	40%	40%	
	3.3 Conditional Formatting	1	02	CO2	20%	40%	40%	
	3.4 Creating a Pivot table	1	03	CO2	20%	40%	40%	
4	Performing Calculations	04	10	CO3				
	4.1 Formulas: SUM and AUTOSUM	1	02	CO3	20%	40%	40%	
	4.2 AVERAGE, MIN and MAX	1	03	CO3	20%	40%	40%	
	4.3 Absolute and Relative Cell Reference	1	03	CO3	20%	40%	40%	
	4.4 SQRT and POWER	1	02	CO3				
SECTION - II								
Unit & Sub-Unit	Topics/Subtopics	Hours	Marks	COs	R Level	U Level	A Level	
5	Text and Date Functions	04	05	CO3				
	5.1 Combining Text, Changing Text case	01	01	CO3	20%	40%	40%	



	5.2	Extracting Text, Finding Text	01	02	CO3	20%	40%	40%
	5.3	Date Formats and Calculations	02	02	CO3	20%	40%	40%
6		Extracting Data	06	08	CO4			
	6.1	Count Functions	02	02	CO4	-	40%	60%
	6.2	Counting with Criteria (COUNTIFS)	02	03	CO4	-	40%	60%
	6.3	Adding with Criteria (SUMIFS)	02	03	CO4	-	40%	60%
7		Printing	02	04	CO4			
	7.1	Print Preview, Orientation, Margins and Scale	01	02	CO4	40%	-	60%
	7.2	Page Breaks, Print Tiles, Headers and Footers	01	02	CO4	40%	-	60%
8		Charts	04	08	CO5			
	8.1	Chart Types: Pie, Column and Line charts	01	03	CO5	20%	40%	40%
	8.2	Move and Resize Charts	01	01	CO5	20%	40%	40%
	8.3	Change Chart Style and Type	01	02	CO5	20%	40%	40%
	8.4	Modify Chart Elements	01	02	CO5	20%	40%	40%
Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms’s Revised Taxonomy).								

IV. LIST OF PRACTICALS/ASSIGNMENTS/TUTORIALS

Sr. No.	Practical/Assignment/Tutorial Title	No. of Hours	Relevant COs
1	Use formulas and functions to perform simple calculations	02	CO3
2	Use relative and absolute cell references for calculations	02	CO3
3	Use font and number formatting tools	02	CO2
4	Find data with Filter and Sort	02	CO2
5	Retrieve and change data using Find and Replace	02	CO2
6	Use Conditional Formatting to highlight specific data	02	CO2
7	Extract information from data using COUNTIF function	02	CO3
8	Extract text and change Text case for given data	02	CO3
9	Printing data sheets with margins, orientation, headers & footers	02	CO4
10	Draw Pie, Column and Line Charts for given data.	02	CO5



V. ASSESSMENTS METHODOLOGIES /TOOLS

Formative assessment (Assessment for Learning)

- Tutorials
- Midterm Test Exam
- Self-learning
- Term Work
- Seminar/Presentation

Summative Assessment (Assessment of Learning)

- End Term Exam
- Tutorial Performance

VI. SUGGESTED COS-POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes * (PSOs)	
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO- 1	PSO- 2
CO1	3	-	-	-	-	2	2	-	3
CO2	3	-	2	-	-	2	2	1	2
CO3	-	3	2	-	-	3	3	2	2
CO4	2	3	3	-	-	3	2	3	2
CO5	2	1	1	-	-	3	2	2	3

Legends :- High:03, Medium:02, Low:01, No Mapping: -
 PSO1: Ability to apply knowledge of selecting raw materials, machines and process parameters using standard methods and engineering tools for designing solutions to meet specific needs of the textile industry.
 PSO2: Understand the impact of textile processes in societal and environmental context and demonstrate the knowledge for sustainable development through teamwork and effective communication for lifelong learning.

VII SUGGESTED LEARNING MATERIALS TEXTBOOKS/REFERENCE BOOKS/WEBSITES

Sr. No	Author	Title	Publisher
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1	Johnson, Steve	Microsoft Office 2010: OnDemand	Pearson Education, New Delhi India, 2010.ISBN :9788131770641
2	Schwartz, Steve	Microsoft Office 2010 for Windows: Visual Quick Start	Pearson Education, New Delhi India, 2012,ISBN : 9788131766613
3	Leete, Gurdy, Finkelstein Ellen, Mary Leete	OpenOffice.org for Dummies	Wiley Publishing, New Delhi, 2003 ISBN :978-0764542220

VII. LEARNING WEBSITES & PORTALS

Sr.No	Link / Portal	Description
1	https://www.coursera.org/learn/excel-essentials#modules	Offered by Macquarie University, Sydney Australia


Curriculum Coordinator


Head of the Department


Dean Diploma

BOS VJTI Approval Dt. 10/07/2024



DIPLOMA PROGRAMME	: DIPLOMA IN TEXTILE ENGINEERING.
PROGRAMME CODE	: DTE
SEMESTER	: THIRD
COURSE TITLE	: ESSENCE OF CONSTITUTION
COURSE CODE	: 236TE37

I. TEACHING AND EXAMINATION SCHEME

TEACHING SCHEME					EXAMINATION SCHEME														
CL	TL	LL	Self-learning	CR	PAPER HRS	FA-TH (MST)	SA-TH (ESE)			TOTAL		Based on LL & TL Practical				Based on Self-learning		TOTAL MARKS	
							Max	Min	-	Max	Min	FA-PR (CA)		SA-PR (PR/OR)		SLA			
												Max	Min	Max	Min	Max	Min		
1	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	50	20	50

Total IKS Hrs for Sem. : 0 Hrs

Abbreviations: CL- Classroom Learning, TL- Tutorial Learning, LL-Laboratory Learning, FA - Formative Assessment, SA -Summative Assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment

Legends: @ Internal Assessment, # External Assessment, *# Online Examination , @\$ Internal Online Examination

Course Category: Discipline Specific Course Core (DSC): 3, Discipline Specific Elective (DSE) : 0, Value Education Course (VEC) : 1, Intern/Apprentice/Project/Community (INP) : 0, Ability Enhancement Course (AEC) : 2, Skill Enhancement Course (SEC) : 2, Generic Elective (GE) : 0

II. RATIONALE:

This course will focus on the basic structure and operative dimensions of Indian Constitution. It will explore various aspects of the Indian political and legal system from a historical perspective highlighting the various events that led to the making of the Indian Constitution. The Constitution of India is the supreme law of India. The document lays down the framework demarcating the fundamental political code, structure, procedures, powers, and sets out fundamental rights, directive principles, and the duties of citizens. The course on constitution of India highlights key features of Indian Constitution that makes the students a responsible citizen. In this online course, we shall make an effort to understand the history of our constitution, the Constituent Assembly, the drafting of the constitution, the preamble of the constitution



that defines the destination that we want to reach through our constitution, the fundamental right constitution guarantees through the great rights revolution, the relationship between fundamental rights and fundamental duties, the futurist goals of the constitution as incorporated in directive principles and the relationship between fundamental rights and directive principles.

II. COURSE OUTCOMES (COs)

Students will be able to achieve the following COs on completion of course based learning

CO1 – List salient features and characteristics of the constitution of India.

CO2 – Follow fundamental rights and duties as responsible citizen of the country.

CO3 – Analyze major constitutional amendments in the constitution.

CO4 – Follow procedure to cast vote using voter-id.

III. COURSE CONTENTS WITH SPECIFICATION TABLE

Unit & Sub-Unit	Topics/Subtopics	Hours	COs
1	Constitution and Preamble	4	
1.1	Meaning of Constitution of India		
1.2	Historical perspectives of the Constitution of India		
1.3	Salient features and characteristics of Constitution of India		
1.4	Preamble of Constitution of India		
2	Fundamental Rights and Directives Principles	4	CO2
2.1	Fundamental Rights in the Indian Constitution under Part III		
2.2	Fundamental duties and their significance under part IV- A		
2.3	Relevance of Directive Principles of State policy under part IV- A		
3	Governance and Amendments	4	CO3
3.1	Amendment procedure of the constitution and their types – simple and special procedure		
3.2	The Principle of Federalism and its contemporary significance along with special committees that were set up		
3.3	Major Constitutional Amendment procedure 1 st , 7 th , 42 nd , 44 th , 52 nd , 73 rd and 74 th , 76 th , 86 th , 01 th and 102 nd		
4	Electoral Literacy and Voter's Education	4	CO4
4.1	Electoral rights and Electoral process of registration		
4.2	Ethical Electoral process of participation		



	4.3	Motivation and facilitation for Electoral participation		
	4.4	Voter's guide		
	4.5	Prospective empowered voter		
	4.6	Voting procedure		
	4.7	Voter awareness		
	4.8	Voter online registration https://www.ceodelhi.gov.in/ELCdetails.aspx		

IV. LIST OF PRACTICALS/ASSIGNMENTS/TUTORIALS

Sr. No.	Practical/Assignment/Tutorial Title
1	Outline the procedure to submit application for Voter-id
2	Prepare an essay on Constitution of India.
3	Prepare a comparative chart of Unique features of Indian Constitution of India and Constitution of USA
4	Self-learning topics: Parts of the constitution and a brief discussion of each part Right to education and girl enrolment in schools. <ul style="list-style-type: none"> • GER of Girls and Boys. • Right to equality. • Social Democracy. • Women Representation in Parliament and State Assemblies.

Micro Project

1. Organize a workshop-cum discussions for spreading awareness regarding Fundamental Rights of the citizen of the country
2. Prepare elaborations where directive principle of State policy has prevailed over Fundamental rights with relevant Supreme Court Judgements.
3. Organize a debate on 42nd, 97th and 103rd Constitutional Amendment Acts of Constitution of India.

Seminar

1. Differences in the ideals of Social democracy and Political democracy.
2. Democracy and Women's Political Participation in India.
3. Khap Panchayat - an unconstitutional institution infringing upon Constitutional ethos.
4. Situations where directive principles prevail over fundamental rights.

Group discussions on current print articles.



- Art 356 and its working in Post-Independent India.
- Women's Reservation in Panchayat leading to Pati Panchayats - Problems and Solutions.
- Adoption of Article 365 in India.
- Need of Amendments in the constitution.
- Is India moving towards a Unitary State Model ?

Activity

-Arrange Mock Parliament debates.

Prepare collage/posters on current constitutional issues.

i. National (Art 352) & State Emergencies (Art 356) declared in India.

ii. Seven fundamental rights.

iii. Land Reforms and its effectiveness - Case study of West-Bengal and Kerala.

V. ASSESSMENTS METHODOLOGIES /TOOLS

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CO1	1	-	-	-	2	-	-	-	-
CO2	1	-	-	-	2	-	-	-	-
CO3	1	2	-	-	2	-	1	-	-
CO4	-	-	-	1	-	-	-	-	-

Legends :- High:03, Medium:02,Low:01, No Mapping: -

PSO1: Ability to apply knowledge of selecting raw materials, machines and process parameters using standard methods and engineering tools for designing solutions to meet specific needs of the textile industry.

PSO2: Understand the impact of textile processes in societal and environmental context and demonstrate the knowledge for sustainable development through teamwork and effective communication for lifelong learning.

VII. SUGGESTED LEARNING MATERIALS TEXTBOOKS/REFERENCE BOOKS/WEBSITES

Sr.No	Author	Title	Publisher
1	P.M. Bakshi	The Constitution of India	Universal Law Publishing, New Delhi, 15 th edition, 2018
2	Durga Das Basu	Introduction to the Constitution of India	Lexis Nexis Publisher, New Delhi, 2015,ISBN:935143446X
3	B.K. Sharma	The Constitution of India	PHI, New Delhi, 6 th edition
4	Granville Austin	The Preamble: Interpretation of the Constitution	Oxford University Press
5	B.L.Fadia	The Constitution of India	Sahitya Bhavan Agra, 2017

VIII. LEARNING WEBSITES & PORTALS

Sr.No	Link / Portal	Description
1.	https://legislative.gov.in/constitution-of-india/	
2.	https://www.sei.gov.in/constitution/	

Dehamb
Curriculum coordinator

Baliga
Head of the Department

Di
Dean Diploma

BOS VJTI Approval Dt. 10/07/2024

