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

(Central Technological Institute, Maharashtra State, INDIA)

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PROGRAMME NAME: DIPLOMA IN TEXTILE ENGINEERING

Programme Code	: DTE	With Effect From Academic Year	: 2023-24
Duration of Programme	: 6 Semester	Duration	: 16 Weeks
Semester	: Fifth	Scheme	: R-2023

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										Practical						
													FA-TH (MST)	SA-TH		Total		FA (CA)		SA (PR/OR)		SLA		
													Max	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	
1	INDUSTRIAL TRAINING	INT	INP	236TE51	-	-	-	-	-	8	4	-	-	-		-		100	40	100#	40	-	-	200
2	YARN MANUFACTURE -III	YM- III	DSC	236TE52	-	4	-	2	-	6	3	3	30	70	28	100	40	25	10	25#	10	-	-	150
3	MAN MADE FIBRE MANUFACTURING AND PROCESSING	MMFP	DSC	236TE53	-	3	1	-	1	5	2.5	3	30	70	28	100	40	25	10	-	-	25	10	150
4	TEXTILE MILL PLANNING ORGANISATION AND COSTING	TMPO	DSC	236TE54	-	3	1	-	1	5	2.5	3	30	70	28	100	40	25	10	-	-	25	10	150
5	TECHNICAL TEXTILE-I	TT-I	DSC	236TE55	-	4	2	-	-	6	3	3	30	70	28	100	40	25	10	-	-	-	-	125
6	MARKETING MANAGEMENT	MM	SEC	236TE56	-	3	1	-	1	5	2.5	3	30	70	28	100	40	25	10	-	-	25	10	150
7	PROFESSIONAL PRACTICE	PP	SEC	236TE57	-	-	-	2	-	2	1	-	-	-	-	-		25	10	-	-	-	-	25
8	PROJECT (MINOR)	PRO	INP	236TE58	-	-	-	6	-	6	3	-	-	-	-	-		50	20	50#	20	-	-	100
Total					-	17	5	10	3	43	21.5	-	150	350				300		175		75		1050

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, * 8 weeks industrial training after 4th Semester. Evaluation of training and reports will be done in 5th semester and the credit for the same will be included in 5th semester mark sheet. The teaching load assigned to a faculty for guiding students in preparation training reports and its evaluations for a batch of students (equivalent to practical batch size) would be 1 hour/week in 5th semester.

Course Category: Discipline Specific Course Core (DSC) : 3, Skill Enhancement Course (SEC) : 2, Internship/Project./Community (INP) :2

Curriculum Coordinator **Head Diploma in Textile Engineering** **Dean - Diploma**

DIPLOMA PROGRAMME	: DIPLOMA IN TEXTILE ENGINEERING
PROGRAMME CODE	: DTE
SEMESTER	: FIFTH
COURSE TITLE	: INDUSTRIAL TRAINING
COURSE CODE	: 236TE51

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
											FA-PR (CA)		SA-PR (PR/OR)		SLA		
						Max	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	
-	-	-	-	4	-	-	-	-	-	-	100	40	100#	40	-	-	200

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

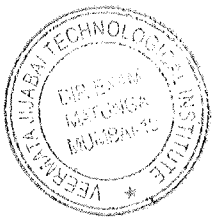
Course Category : Discipline Specific Course Core (DSC) : 3, Discipline Specific Elective (DSE) : 0, Value Education Course (VEC) : 1, Intern./Apprentice/Project./Community (INP) : 0, Course (AEC) : 2, Skill Enhancement Course (SEC) : 2, Generic Elective (GE) : 0

II. RATIONALE

The industry training is aimed to impart employable skills in the respective field to get a job/employment. Students are expected to learn the work practice and environment of the respective industry and develop a report. On the basis of this report the institute departments will evaluate the student performance.

III. COURSE OUTCOMES (COs)

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



- CO1 - Gain hands-on experience in applying theoretical concepts to real-world tasks, improving their understanding and problem-solving abilities and readiness for the workforce.
- CO2 - Boosts students' self-confidence and encourages them to pursue ambitious career goals. to earn a livelihood for a better status in society.
- CO3 - Interact with industry professionals during training to build valuable connections for job opportunities.

IV. GENERAL GUIDELINES FOR ORGANISING INDUSTRIAL TRAINING

The industry/organization selected for Industrial training/ internships shall be Government / Public Limited/ Private limited / Startup /Centre of Excellence/Skill Centers/Skill Parks etc.

a) Duration of Training - 8 weeks students engagement time (Min. 28-30 hrs./week)
b) Period of Time slot - After 4th Semester
c) Industry area - Engineering Programme allied industries of large, medium or small-scale, Organization / Govt. / Semi Govt Sectors.

Role(s) of Training and Placement Office (TPO)- Diploma Programs at the Institute:

The TPO - Diploma Programs shall be responsible for placing the student for industrial training which shall be a Government / Public Limited/ Private limited / Startup /Centre of Excellence/Skill Centers/Skill Parks etc.

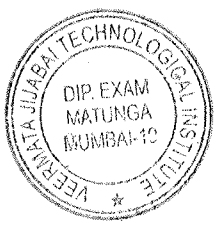
Role(s) of the respective Heads of Department- Diploma / / Industrial Training Supervisor(s):

1. Concerned **Head of Department - Diploma** shall appoint a Faculty Industrial Training Coordinator, who can be a permanent / ad-hoc / contractual faculty of the respective department in their departmental faculty meetings before the start of the Mid semester Test for Fourth Semester.
   Heads of Department - Diploma shall send the decided names of the Departmental Faculty Industrial Training Coordinator to the TPO - Diploma Programs before the start of the Mid Semester Test of the Fourth Semester.

2. The **Faculty Industrial Training Coordinator shall** coordinate with the TPO- Diploma Programs and ensure that all the students of their respective departments are placed by the TPO - Diploma Programs. He/She shall allocate Faculty supervisors to all the students undergoing Industrial Training in their respective departments in consultation with the Diploma Head of Department.

   Before the scheduled date as decided by the Diploma Exam Section they shall collect and compile the marks received from the respective Faculty Supervisors for all the students that have undergone the Industrial Training that semester.

   The marks shall be submitted to the Diploma Exam Section and the required entries



made in the software as per the regular instructions from the Diploma Exam Section. A self signed copy of the final compiled marksheet shall be submitted to the TPO - Diploma Programs and the Diploma Head of Department for records.

3. **Faculty Supervisors** shall coordinate with the allocated industry/organisation and monitor the attendance and progress of the students allocated to them. They shall acquire the undertaking from Parents/Guardians(Format 1) and Student(Format 2). They shall ensure to maintain all records like Internship Diary of each student and complete the evaluation for the students allocated to them in consultation with the **Faculty Industrial Training Coordinator and the Diploma Head of Department**. Maintain the final report submitted by the students at the end of their evaluation. They shall submit the marks to the respective **Departmental Faculty Industrial Training Coordinator.**

Role(s) and Responsibilities of students:

a) Students shall interact with the **Faculty Supervisors** allocated to them for suggestions on Industrial Training choices of suitable industry, if any. If students have any contact in industry through their parents or relatives then the same may be utilized for securing placement for themselves and their peers through proper documentation through their Faculty Supervisors and TPO Diploma Programs.

b) Students have to obtain the forms/formats duly signed by institutional authorities along with a training letter and submit it to the training officer/mentor in the industry on the first day of training.

c) Students must submit the undertaking as provided in Format 1 and Format 2 to their faculty Supervisors.

d) Students must carry with him/her Identity card issued by the institute during the training period.

e) Students should follow industrial dressing protocols, if any. In absence of specific protocol students must wear appropriate uniform compulsorily as required by the industry.

f) Students will have to get all necessary information from the training officer/mentor at industry regarding schedule of training, rules and regulation of the industry and safety norms to be followed. Students are expected to observe these rules, regulations and procedures strictly.

g) Students must be fully aware that if they disobey any rule of industry or do not follow the discipline then non-disciplinary action will be taken.

h) Students must maintain a weekly diary (Format 3) by noting daily activities undertaken and get it duly signed from Industry mentor or Industrial training in charge.

i) In case students face any major problems in industry such as an accident or any disciplinary issue then they should immediately report the same to their Faculty Supervisor.

j) Prepare a final report about the training for submission to the department at the time of evaluation, presentation and viva-voce etc. and get it signed by the Faculty Supervisor, Departmental Faculty Industrial Training Coordinator and Diploma Head of Department.

Typographical guidelines for Industry Training report:

Following is the suggestive format for preparing the training report. Actual report may differ slightly depending upon the nature of industry. The training report may contain the following

a) The training report shall be computer typed (English-British) and printed on A4 size paper.
b) Text Font -Times New Roman (TNR), Size-12 point
c) Subsection heading TNR- 12 point bold normal
d) Section heading TNR- 12 capital bold
e) Chapter Name/ Topic Name – TNR- 14 Capital
f) All text should be justified. (Settings in the Paragraph)
g) The report must be typed with 1.5 spacing with a margin 3.5 cm on the left, 2.5 cm on the top, and 1.25 cm on the right and at bottom.
h) The training report must be Spiralbound. The name of the candidate, diploma (department), year of submission, name of the institute shall be printed on the cover [Refer sample sheet (outer cover)]
i) The training report, the title page should be given first then the Certificate followed by the acknowledgment and then contents with page numbers.

Suggestive format of industrial training report:

Following format may be used for training reports. Actual format may differ slightly depending upon the nature of Industry/ Organization.

- Title Page Certificate Abstract
- Acknowledgement
- Content Page

Chapter 1

Organization structure of Industry and general layout.

Chapter 2

Introduction to Industry / Organization (history, type of products and services, turn over and number of employees etc.)

Chapter 3

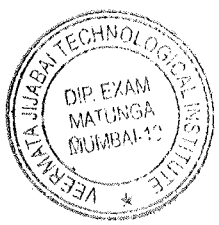
Types of Major equipment/raw materials/ instruments/machines/ hardware/software used in industry with their specifications, approximate cost, specific use and routine maintenance done.

Chapter 4

Processes/ Manufacturing techniques and methodologies and material handling procedures.

Chapter 5

Testing of Hardware/Software/ Raw materials/ Major material handling product (lifts, cranes, slings, pulleys, jacks, conveyor belts etc.) and material handling procedures.



Chapter 6

Safety procedures followed and safety gears used by industry.

Chapter 7

Particulars of Practical Experiences in Industry/Organization if any in Production/Assembly/Testing/Maintenance

Chapter 8

Detailed report of the tasks undertaken (during the training).

Chapter 9

Special/challenging experiences encountered during training if any.

Chapter 10

Conclusion

Chapter 11

References / sources of information

NOTE: The above Format is only a guideline and the Chapters may change as per the Industry and Department of Training received.

Format-1
Consent Letter from parents/guardians
(Undertaking from Parents)

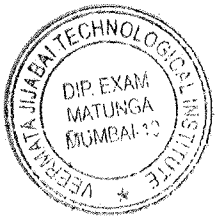
To,
The Diploma Head of Department,

_____.

Subject: Consent for Industrial Training

Sir/Madam,
I am fully aware that -

1. My ward studying in _____semester at your institute has to undergo _____weeks of Industrial training for partial fulfillment towards completion of Diploma in Engineering.
2. For this fulfillment he/she has been deputed at _____industry,



located at _____ for

Industrial training /Internship for the period from_____ to _____.

With respect to above I give my full consent for my ward to travel to and from the mentioned industry. Further I undertake that –

1. My ward will undergo the training at his/her own cost and risk during training and/or stay during the period of training.
2. My ward will be entirely under the discipline of the organization where he/she will be placed and will abide by the rules and regulations in face of the above mentioned industry.
3. My ward is NOT entitled to any leave during the training period.
4. My ward will regularly submit a prescribed weekly diary, duly filled and countersigned by the training supervisor of the industry to the faculty supervisor of the department.

I have explained the contents of the letter to my ward, who has also promised to adhere strictly to the requirements. I assure that my ward has been properly instructed by me to take his own care to avoid any accidents / injuries in the industry. In case of any accident neither industry nor the institute will be held responsible.

Signature of Parent/Guardian :_____ Signature of the student: _____

Name : _____ Name of the Student: _____

Address : _____ Registration No: _____

Phone Number:_____ Phone Number of student: _____

Place and Date : _____

Format-2

Undertaking by the Student

To,
The Diploma Head of Department,

_____Department.

Subject: Undertaking regarding Placement for Industrial training of 8 weeks duration

I _____Registration No_____S/o/D/o_____

studying in _____ Department at Veermata Jijabai Technological Institute

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DIP. EXAM
MATUNGA
MUMBAI

am fully aware of the Industrial Training requirements and related responsibilities and participation in the Industrial training at _____ (Industry Name and Place).

From: _____To_____

I assure you that I will be of good behavior and be obedient to the staff and mentor during the training period mentioned above. I will also abide by and will not participate in irresponsible activities. I will also discipline myself within the rules and regulations of the Institution. I am also aware that I am participating in the Industrial Training at my own risk and I will not hold Veermata Jijabai Technological Institute responsible in any way in any eventuality namely Accident /Injury/death or whatever mishap and I myself will be solely responsible for my safety.

Place : _____ Signature of the student: _____

Date : _____

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Format 3

VEERMATA JIJABAI TECHNOLOGICAL INSTITUTE

[Central Technological Institute, Maharashtra state]

Matunga, Mumbai-400019

DIARY

Industrial Training and Internship

DEPARTMENT OF _____ ENGINEERING

Year: _____

Name of Industry: _____

Address: _____

Contact No. of Industry Mentor _____

Name of the Student: _____

Registration No. _____

WEEK NO. ___

Date	Details of Work Allotted	Sign of Industry Mentor

Institute Faculty Supervisor's Name: _____

Signature:_____

V. ASSESSMENTS METHODOLOGIES /TOOLS

1. Formative assessment (Assessment for Learning)

Academic year : 20___-20___

Name of the industry: _____

Marks : Max 100, Min 40

Based on the following:

- Weekly reports of the Internship Diary in the given format to the Faculty Supervisors (Marks:).
- Behaviour at the Industry (Marks:).
- Feedback from the Industry Mentor (Marks:).

Name of mentor : _____

Signature of Mentor : _____

2. Summative Assessment (Assessment of Learning)

Academic year : 20___-20___

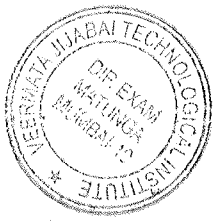
Name of the industry: _____

Marks : Max 100, Min 40

Sr No	Registration No	Name of the Student	Observations from Orals/Presentations				Total Marks Obtained Out of 100
			Knowledge about Industry & Departments (Marks:)	Knowledge of Layout/M/C Specifications / Components etc (Marks:)	Skill Developed Presentation / Discipline etc. (Marks:)	Submitted Report (Marks:)	

Name of mentor: _____

Signature of Mentor: _____



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	3	2	3	2	2	3	3	2
CO2	3	3	2	3	2	2	3	3	2
CO3	3	3	2	3	2	2	3	3	2

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.

Curriculum coordinator

Head of the Department

Dean Diploma

VEERMATA JIJABAI TECHNOLOGICAL INSTITUTE DIP EXAM MATUNGA MUMBAI-19

BOS VJTI Approval Dt. 23/5/2025

VEERMATA JIJABAI TECHNOLOGICAL INSTITUTE DIP EXAM MATUNGA MUMBAI-19

DIPLOMA PROGRAMME	**: DIPLOMA IN TEXTILE ENGINEERING**
PROGRAMME CODE	**: DTE**
SEMESTER	**: FIFTH**
COURSE TITLE	**: YARN MANUFACTURE-III**
COURSE CODE	**: 236TE52**

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
											FA-PR (CA)		SA-PR (PR/OR)		SLA		
						Max	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	
4	0	2	-	3	3	30	70	28	100	40	25	10	25#	10	-	-	150

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) : 1

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 ring spun yarns and manufacture of yarns by other alternative methods is of

prime importance to manufacture yarn from fibers. The method used for spinning of yarn affects the properties of yarn produced , and furthermore, it affects fabric properties. So, it is essential for textile engineers to learn the principles of machines involved in the spinning of yarns by the alternative spinning methods. The processes of doubling, blended yarns and production of fancy yarns is also covered which completes the production of all types of spun yarns. This course describes basic facts, concepts, and principles of open end and air jet spinning systems.

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 doubling process for the production of combed yarn.
- CO2 - Use the fancy yarn machines for producing fancy yarns.
- CO3 - Calculate linear speeds, drafts and production values for doubled and fancy yarns.
- CO4 - Use the open end spinning machines for producing rotor spin and friction spun yarns.
- CO5 - Use the air jet machines for producing air jet spun yarns.
- CO6 - Compare the various yarns for the yarn properties that affect yarn quality.

IV. COURSE CONTENTS WITH SPECIFICATION TABLE

SECTION - I								
Unit & Sub-Unit		**Topics/Subtopics**	**Hours**	**Marks**	**COs**	**R Level**	**U Level**	**A Level**
1		**Doubling, TFO, Fancy doubler – Introduction, construction and working**	**14**	**10**	**CO1**	**40%**	**50%**	**10%**
	1.1	Brief study of the doubling process on a conventional doubling machine and the principle of doubling on TFO. Study of the wet and dry doubling methods, conditioning and singeing.						
	1.2	Physical properties of doubled yarns. Effect of direction and amount of twist on properties of doubled yarns. Concept of balanced twist, special doubled yarn						

		products, their manufacturing and requirements. Passage of yarn through TFO twister. Conditioning of yarns – Various methods, objects. Singeing of yarn –Various methods, precautions required in the process.						
2		**Fancy Doubler – Introduction, Construction, working and modern developments**	**10**	**15**	**CO2**	**20%**	**70%**	**10%**
	2.1	Principles of fancy doublers. Study of the marl, gimp, knop, corkscrew, slub, snarl, loop and chenille yarns. Use of elastic / stretchable yarns in fancy yarn production (e.g., Lycra- Spandex and Elastane etc.)						
	2.2	Requirement of various mechanisms in the machine for producing fancy yarns. Various Methods of fancy yarn production. Production of marl, gimp, knop, corkscrew, slub, snarl, loop yarn, chenille yarns and discussion on new fancy yarns in the market.						
3		**Calculations for Doubled yarn production and Fancy yarn comparisons**	10	10	CO3	10%	10%	80%
	3.1	Calculation of twist, resultant count and production of doubled yarns. Calculations of the requirement of component yarns in the production of fancy yarns.						
	3.2	Compare the S/Z with Z/Z doubled yarns, the snarl yarn with loop yarns and knop yarns with slub yarns for their structures and related the properties with the raw material properties and their production methods.						

SECTION - II								
Unit & Sub-Unit		Topics/Subtopics	Hours	Marks	COs	R Level	U Level	A Level
4		**Alternate Spinning Systems - Introduction**	**10**	**10**	**CO4**	**20%**	**70%**	**10%**
	4.1	The operating principle of the various spinning methods; i.e. open end spinning, twist spinning, self-twist spinning, wrap spinning, adhesive process, false twist spinning and air-jet spinning.						
5		**Rotor Spinning and Single nozzle vortex Spinning– Construction and working**	**14**	**15**	**CO5**	**20%**	**70%**	**10%**

	5.1	Construction and working of the rotor spinning machine. Raw material requirements and preparation. Detailed study of the rotor and the navel. Processing of raw material in open-end rotor spinning and selection of process variables.						
	5.2	Construction and working of the single nozzle air jet spinning machine. Raw material requirements and preparation. Detailed study of the spinning nozzle and the influence of the various spinning parameters on the yarn quality.						
6		**Comparison of different spinning systems**	**10**	**10**	**CO6**	**10%**	**10%**	**80%**
	6.1	Comparison of yarn structure of the yarns spun by the various alternate spinning systems, the field of application and the limitations and advantages of the systems.						

V. LIST OF PRACTICALS/ASSIGNMENTS/TUTORIALS

Sr. No.	Practical/Assignment/Tutorial Title	No. of Hours	Relevant COs
1	1.1 Observe the doubling machine in the workshop. 1.2 Illustrate the passage of material through the doubling machine for dry doubling.	2	CO1
2	2.1 Observe the doubling machine in the workshop. 2.2 Illustrate the passage of material through the doubling machine for wet doubling.	2	CO1
3	3.1 Observe the TFO twister in the workshop. 3.2 Illustrate the passage of material through the TFO twister.	2	CO1
4	4.1 Observe the fancy doubler in the workshop. 4.2 Illustrate the passage of material through the fancy doubler for various fancy yarns.	2	CO2
5	5.1 Analyze the given snarl and loop yarn. Calculate the raw material requirement to produce these yarns. 5.2 Illustrate the production method for the above yarns and list down the raw material characteristics of the yarns used in their production.	2	CO2
6	6.1 Analyze the given knop and slub yarn. 6.2 Illustrate the production method for the above yarns and list down the raw material characteristics of the yarns used in their production.	2	CO2
7	7.1 Trace the gearing diagram of the doubling frame. 7.2 Calculate the speeds, twist and production on the doubling frame.	2	CO3
8	8.1 Test the S/Z and Z/Z doubled yarns for their snarling tendency and hairiness. 8.2 Tabulate the observations.	2	CO3

9	9.1 Test the doubled yarns for strength and evenness. 9.2 Tabulate the observations.	2	CO3
10	10.1 Observe the rotor spinning unit in the workshop. 10.2 Illustrate the passage of material through the rotor spinning machine.	2	CO4
11	11.1 Observe the friction spinning unit during the industrial visit. 11.2 Illustrate the passage of material through the friction spinning machine.	2	CO4
12	12.1 Observe the air jet spinning unit in the workshop. 12.2 Illustrate the passage of material through the air jet spinning machine.	2	CO5
13	13.1 Observe the ring spun, rotor spun, air jet yarns and friction spun yarns in the laboratory. 13.2 Illustrate the structure of the above yarns with images stating their special features.	2	CO6
14	14.1 Test the ring spun, rotor spun, air jet yarns and friction spun yarns in the laboratory for their count and strength. 14.2 Illustrate the comparative table for the above study.	2	CO6
15	15.1 Test the ring spun, rotor spun, air jet yarns and friction spun yarns in the laboratory for their evenness and hairiness. 15.2 Illustrate the comparative table for the above study.	2	CO6
Note: 1.15 practicals based on CO1, CO2, CO3, CO4, CO5 and CO6. 2. Practicals shall be engaged in the batch size of 20 to 30 students. 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.			

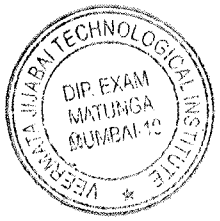
VI. ASSESSMENTS METHODOLOGIES /TOOLS

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 an 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 5	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	nline Learning Initiatives by SWAYAM
2	https://www.youtube.com/@aartibaliga6490/playlists	Yarn Manufacture

Curriculum Coordinator

Head of the Department

Dean Diploma

VEERMATA JIJABAI TECHNOLOGICAL INSTITUTE CHP EXAM MATUNGA MUMBAI-19

DIPLOMA PROGRAMME	**: DIPLOMA IN TEXTILE ENGINEERING**
PROGRAMME CODE	**: DTE**
SEMESTER	**: FIFTH**
COURSE TITLE	**: MANMADE FIBER MANUFACTURING AND PROCESSING**
COURSE CODE	**: 236TE53**

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
											FA-PR (CA)		SA-PR (PR/OR)		SLA		
						Max	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	
3	1	-	1	2.5	3	30	70	28	100	40	25	10	-	-	25	10	150

Total IKS Hrs for Sem.: 0 Hrs

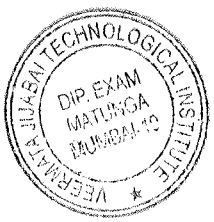
Abbreviations: CL- Classroom Learning, TL- Tutorial Learning, LL-Laboratory Learning, FA - Formative Assessment, SA -Summative Assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment

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

Course Category: Discipline Specific Course Core (DSC): 1

II. RATIONALE

Today manmade fibers dominate the market due to their cost-effectiveness, enhanced durability, and performance-driven properties. Manmade fibers such as polyester, nylon, acrylic, and polypropylene have become essential in diverse applications, including apparel, home textiles, industrial textiles, and technical textiles. With the increasing demand for synthetic fibers, there is a strong need for a skilled workforce that understands the manufacturing, processing, and quality assessment of manmade fibers. This course is designed to equip students with comprehensive knowledge in fiber production, processing, and testing. The curriculum focuses on polymer science, synthetic fiber production techniques, filament modifications, finishing treatments, and fiber quality testing to prepare students for careers in fiber manufacturing, textile processing, R&D, and quality control.



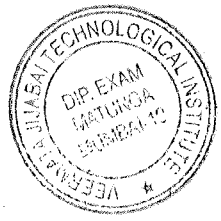
III. COURSE OUTCOMES (COs)

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

- CO1 – Select synthetic fibres/filaments for different applications
- CO2 – Choose the method for manufacturing given man-made fibre.
- CO3 – Apply knowledge of spin finishes and staple fiber processing techniques.
- CO4 – Select method of manufacturing textured yarn suitable for different end uses.
- CO5 – Apply knowledge of blended yarn and precautions for spinning these yarns.
- CO6 – Demonstrate the test methods for evaluating properties of manmade yarns and fibers.

IV. COURSE CONTENTS WITH SPECIFICATION TABLE

SECTION – I								
Unit & Sub-Unit		Topics/Subtopics	Hours	Marks	COs	R Level	U Level	A Level
1		**Basic Concepts of High Polymer Systems**	**04**	**06**	**CO1**	**40%**	**40%**	**20%**
	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						
	1.2	Raw materials used in the production of fibres like nylon, polyester, acrylic and polyolefins, PVC and lycra						
2		**Synthetic yarn production techniques and properties**	**14**	**21**	**CO2**	**40%**	**40%**	**20%**
	2.1	Detailed study of the Melt spinning, Dry spinning and the Wet spinning techniques. Spinning of high performance fibres by gel spinning						
	2.2	Production of Polyamides, Polyesters, Acrylic, Polyolefins and Viscose rayon. Introduction to Acetate, Triacetate and Lyocell fibres						
	2.3	Properties and applications of Synthetic Fibers: Polyamides, Polyesters, Acrylics, Polyolefins and Viscose rayon Carbon, Glass, Poly tetra fluro ethylene (PTFE), Poly methyl methacrylate (PMMA) and Polyurethanes						



3		**Spin finishes and Staple fiber production**	**06**	**08**	**CO3**	**40%**	**40%**	**20%**
	3.1	Inadequacies of manmade fibres: Static electricity and the remedy. Function, Properties and Composition of spin finishes. Methods of applications of spin finish.						
	3.2	Fiber production: Drawing, Heat setting, Crimping, Tow to top conversion - Cut and stretch method						
SECTION – II								
Unit & Sub-Unit		**Topics/Subtopics**	**Hours**	**Marks**	**COs**	**R Level**	**U Level**	**A Level**
4		**Filament Texturing**	**16**	**23**	**CO4**	**40%**	**40%**	**20%**
	4.1	Textured yarns – Types, special features, Uses and properties						
	4.2	False twist texturising process – process, feed material characteristics and machines. Draw texturising. Comparison between pin spindle and friction disc. New developments in friction texturising. Air Jet texturising – Process variables and yarn properties						
	4.3	Study of gear crimping, stuffer box, Knife edge crimping, Knit-de knit processes						
	4.4	Comparison between the various texturing methods, process variables and yarn properties						
5		**Blended yarn production**	**04**	**06**	**CO5**	**40%**	**40%**	**20%**
	5.1	Blending- Purpose and process outline. Concept of blend evenness and measurement						
	5.2	Precautions and the changes required in the production of man-made and blended yarns in Blowroom, Card, Comber, Drawframe, Speedframe, Ringframe and Rotor spinning						
6		**Testing of Synthetic Fibers and Yarns**	**04**	**06**	**CO6**	**40%**	**40%**	**20%**
	6.1	Frictional properties, Antistatic property, % Shrinkage						
	6.2	Filament yarn Testing: Draw force, Shrinkage force using Dynafil Tester						
	6.3	Textured yarn Testing: Crimp contraction and Bulk properties using Textured Yarn Tester (TYT)						

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

V. LIST OF TUTORIALS

Sr. No.	Tutorial Title	No. of Hours	Relevant COs
1	Prepare a chart showing the classification of polymers (natural, synthetic, thermoplastics, thermosets), along with examples and their uses in textile applications.	01	CO1
2	Prepare a comparative table showing the physical, mechanical, chemical and thermal properties (glass transition and melting temperature) of common textile polymers (e.g., Nylon 6, PET, Acrylic, Polypropylene)	01	CO1
3	Watch videos or read articles on Melt, Dry, and Wet spinning. Write a brief report summarizing the steps involved, materials used, and differences between the processes.	01	CO2
4	Find and write the specifications of various commercially available: i) manmade filament and textured yarns and ii) manmade fibers	01	CO3
5	Compare the fabric properties, manufacturing processes and applications of four fabrics produced from i) Monofilament yarn ii) Multifilament yarn, iii) Textured yarn and iv) Spun yarn (staple fiber)	01	CO4
6	Prepare a comparison table of at least 4 texturing methods (False twist, Air jet, Stuffer box, Draw texturing) covering process steps, machine type, yarn properties, and applications.	01	CO4
7	Prepare a process flow chart for blended yarn production using polyester/cotton blend. Highlight the key changes required at each stage (Blowroom to Ringframe).	01	CO5
8	Study the manmade yarn defects (filamentation, broken filaments, etc.)	01	CO6

VI. LIST OF SELF LEARNING ASSIGNMENT

Sr. No.	**Self learning assignment**	**No. of Hours**	**Relevant COs**
1	Collect different manmade filament yarns used in industry. Collect data of the name of the company, price of the same.	01	CO1
2	Collect data of various Polyester filament yarn used in industry, their specifications, and end use.	01	CO1
3	Compare and contrast production, properties, and sustainability aspects of Viscose, Lyocell, Acetate & Triacetate Rayons	01	CO2
4	Collect data of various applications of Viscose Rayon, Acetate Rayon, Cuprammonium Rayon, Polynosic and Tensel along with the fiber / yarn specifications	01	CO2/CO3

5	Collect data of different manmade fibers used in industry, their specifications and price of the same.	01	CO3
6	Collect data on various types of texturising machines used in various texturising units, make of texturising machines, name of the units, speeds used for texturising of polyester POY in and around Silvassa.	01	CO4
7	Collect various textured yarns available in the industry, write the particulars of the same and write end uses.	01	CO4
8	Collect 3 garments or products using textured yarns (e.g., socks, stretchwear, upholstery). Study the fabric properties (bulk, stretch, thermal insulation, moisture management) relevant to texturing techniques and contribution of texturing to functionality of that apparel / industrial textiles.	01	CO6
9	Collect the data of yarns produced with different blend proportions of fibers along with its application.	01	CO6

VII. 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

VIII. 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	3	1
CO2	3	1	1	2	1	-	1	3	2
CO3	3	1	1	2	1	-	1	3	2
CO4	3	1	2	2	1	-	1	3	2

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

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.

XI. SUGGESTED LEARNING MATERIALS TEXTBOOKS/REFERENCE BOOKS/WEBSITES

Sr. No.	Author	Title	Publisher
1	V B Gupta, V K Kothari	Manufactured Fibre Technology	Springer science
2	S P Mishra	A textbook of fibre science and technology	New Age International Publishers
3	A. A. Vaidya	Production of Synthetic Fibers	Prentice Hall of India Publication
4	Dr Premamoy Ghosh	Fibre Science and Technology	McGraw Hill ISBN: 9780070528031
5	J E McIntre	Synthetic fibres: nylon, polyester, acrylic, polyolefin	The Textile Institute, Woodhead Publishing Limited
6	R S Gandhi	A guide to crimping/texturing technology	Man-made textiles research association

X. LEARNING WEBSITES & PORTALS

Sr. No.	Link / Portal	Description
1	https://nptel.ac.in/courses/116102010	Manufactured Fibre Technology, IIT Delhi Prof. Ashwini Kumar Agrawal
2	https://nptel.ac.in/courses/116102026	Textile Fibres, IIT Delhi Dr. Samrat Mukhopadhyay
3	https://nptel.ac.in/courses/116102053	Textured Yarn Technology, IIT Delhi Prof. Kushal Sen
4	https://www.polyspintex.com/education/	PolySinTex, Inc.
5	https://www.onlinetextileacademy.com/	
6	https://www.swicofil.com/consult/textile-applications/texturing	
7	https://www.rieter.com/products/systems/texturing	
8	https://www.britannica.com/technology/man-made-fiber	

Curriculum coordinator | Head of the Department | Dean Diploma

BOS VJTI Approval Dt. 23/5/2025

VEERMATA JIJABAI TECHNOLOGICAL INSTITUTE DIP. EXAM MATUNGA MUMBAI-19

DIPLOMA PROGRAMME	**: DIPLOMA IN TEXTILE ENGINEERING**
PROGRAMME CODE	**: DTE**
SEMESTER	**: FIFTH**
COURSE TITLE	**:TEXTILE MILL PLANNING ORGANISATION AND COSTING**
COURSE CODE	**: 236TE54**

1.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
												FA-PR (CA)		SA-PR (PR/OR)		SLA		
						Max		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	
3	1	-	1	2.5	3	30		70	28	100	40	25	10	-	-	25	10	150

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

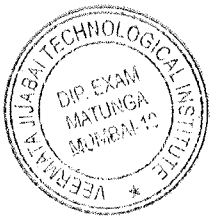
Course Category: Discipline Specific Course Core (DSC): 1

II.RATIONALE

This course equips students with essential knowledge to address key challenges in managing the Textile Industry. It covers the effective management of resources such as manpower, machinery, materials, and finances. Students will comprehend to plan machine specifications, implement plant layouts, and make informed decisions regarding productivity and manpower management. This course aims to enable students to manage the textile industry efficiently and effectively.

III.COURSE OUTCOMES (COs)

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



- CO1 – Identify infrastructural requirements and industrial safety norms for hazard free and efficient work in textile industry.
- CO2 – Select the site, building, plant, and machinery layout for textile mill.
- CO3 – Manage the material and machine production for spinning and weaving mills.
- CO4 – Use of appropriate Material handling equipment for various departments in textile industry.
- CO5 – Select the optimum skilled man-power.
- CO6 – Apply the principles of costing in textile industry.

IV. COURSE CONTENTS WITH SPECIFICATION TABLE

SECTION – I								
Unit & Sub-Unit		Topics/Subtopics	Hours	Marks	COs	R Level	U Level	A Level
1		**Infrastructural requirements and Industrial Safety**	**05**	**08**	**CO5**	**40%**	**40%**	**20%**
	1.1	**Civil Building Construction:** General principles of building construction & building functions. Types of factory buildings. Types of building construction						
	1.2	**Lighting:** Introduction, General requirements of good lighting, Efficiency of lighting.						
	1.3	**Ventilation and Humidification:** Introduction, Humidification plan for textile industry.						
	1.4	**Industrial Safety:** Concepts of industrial safety, procedures, fire safety, Health hazards and precautionary measures in textile mill. Noise in textile industry, Noise control, desirable noise level in various department.						
2		**Site Selection and Plant and Machinery layout**	**05**	**08**	**CO2**	**40%**	**40%**	**20%**
	2.1	**Site Selection:** Introduction, Selection of site for textile mills, Actual selection of specific site, Factors influencing site selection.						

	2.2	**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.						
3		**Machinery specification, selection and calculations of no. of machines:** Selection of machines & machinery specifications required for the product in spinning, weaving. Calculation for no. of machines in spinning/spin plan. 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). Preparing organization of rotor spinning mill. Calculation regarding efficiency, waste, draft, twist, production rates, amount of raw material required and no. of machinery required at different stages of spinning process. Calculation for no. of machines in weaving / weave plan - Preparation of organization for shuttle & based on number of weaving machines & production of different cloths. Calculation regarding efficiency, waste, crimp, production rates, raw material and no. of machinery required at different weaving processes.	**14**	**19**	**CO1**	**10%**	**10%**	**80%**
SECTION – II								
Unit & Sub-Unit		Topics/Subtopics	Hours	Marks	COs	R Level	U Level	A Level

4		**Materials Handling:** Introduction, Definition and functions, Principles of materials handling, Material handling methods, engineering and economic factors. Selection and types of material handling equipment.	05	08	CO7	40%	40%	20%
5		**Labour Compliment:** Types of labour required, Labour compliment, labour and staff required for spinning and weaving based on workload consideration	03	04	CO4	20%	40%	40%
6		**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.	16	23	CO8	20%	40%	40%

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

V. LIST OF TUTORIALS

Sr. No.	Tutorial Title	No. of Hours	Relevant COs
1	Collect information about different types of fire extinguishers used in different departments of textile industry.	1	CO1
2	Identify factors of noise reduction in textile mills.	1	CO1
3	Preparation of organization for ring spinning mill and preparatory departments based on ring spindle capacity and production of ring spun yarn (Carded).	1	CO3
4	Preparation of organization for ring spinning mill and preparatory departments based on ring spindle capacity and production of ring spun yarn (Combed).	1	CO3
5	Preparation of organization for ring spinning mill and preparatory departments based on ring spindle capacity and production of ring spun yarn (Blended).	1	CO3

6	Preparation of organization for ring spinning mill and preparatory departments based on ring spindle capacity and production of ring spun yarn (Folded).	1	CO3
7	Preparation of organization for rotor spinning and preparatory departments based on rotor spindle capacity and production of rotor spun yarn.	1	CO3
8	Calculation for no. of machines in weaving / weave plan - Preparation of organization for shuttle & based on number of weaving machines & production of different cloths.	1	CO3
9	Collect information about modern material handling equipment used in different departments of textile industry.	1	CO4
10	Prepare labour compliment for different departments in textile industry	1	CO5
11	Calculations related to Marginal Costing and Break even analysis.	1	CO6
12	Calculations related to Standard costing.	1	CO6

VI. SUGGESTED MICRO PROJECT / ASSIGNMENT/ ACTIVITIES FOR SPECIFIC LEARNING / SKILLS DEVELOPMENT (SELF LEARNING)

Seminar

1. Illumination plan for textile industry
2. Modern developments in material handling equipment used in textile industry.
3. Need of humidification plant in the spinning and weaving industry.

Assignment

1. Compare the different types of plant layouts used in the textile industry
2. Collect the norms for the noise level in various departments in spinning and weaving industry.
3. Compare types of fire safety measures used in textile industry.

Micro project

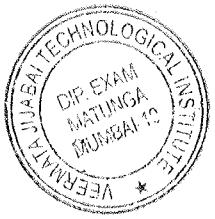
1. Prepare the plant layout for the garment company considering material handling and safety measures.
2. Prepare the plant layout for the weaving mill.
3. Prepare the plant layout for the spinning mill.
4. Prepare the organisation chart for composite textile mill

Note:

- Above is just a suggestive list of microprojects and assignments; faculty must prepare their own bank of microprojects, assignments, and activities in a similar way.
- The faculty must allocate judicial mix of tasks, considering the weaknesses and / strengths of the student in acquiring the desired skills.
- If a microproject is assigned, it is expected to be completed as a group activity.
- SLA marks shall be awarded as per the continuous assessment record.

VII. 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

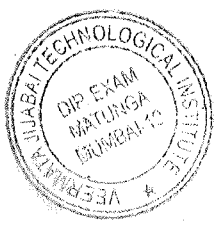
VIII. SUGGESTED COS-POS MATRIX FORM

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	3	3	3	3	3	3	-
CO2	3	3	3	3	3	3	3	3	-
CO3	3	3	3	3	3	3	3	3	-
CO4	3	3	3	3	3	3	3	3	-
CO5	3	3	3	3	3	3	3	3	-
CO6	3	3	3	3	3	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.

IX. SUGGESTED LEARNING MATERIALS TEXTBOOKS/REFERENCE BOOKS/WEBSITES

Sr. No.	Author	Title	Publisher
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	Purshothama B.	Humidification and ventilation Management in Textile Industry	Woodhead Publishing, 2010 ISBN 9788190800129
4	Reese Charles	Material Handling Systems: Designing for Safety and Health	Taylor and Francis, New York, ISBN 1560328681
5	Purshothama B.	A Practical Guide to Quality Management in Spinning	Woodhead Publishing Limited, ISBN: 978-0-93-80308-081

X. LEARNING WEBSITES & PORTALS

Sr. No	Link / Portal	Description
1	https://www.rieter.com/products/systems/fiber-preparation	Rieter
2	https://www.lmwtmd.com/products-ring-spinning.php	Lakshmi Machine Works
3	https://www.truetzschler.com/en/spinning/	Truetzschler
4	https://www.textilemachines.co.in/material-handling-equipments.html	Material Handling
5	https://sitra.org.in/	South India Textile Research Association
6	https://garph.co.uk/IJAREAS/Feb2015/2.pdf	Lighting in textile industry
7	https://www.uster.com/value-added-services/uster-statistics/	Uster Statistics
8	https://www.saurer.com/en	Saurer Textile solutions Ltd.

Note:
Teachers are requested to check the creative common license status /financial implications of the suggested online educational resources before use by the students

Curriculum coordinator

Head of the Department

for Dean Diploma

VEERMATA JIJABAI TECHNOLOGICAL INSTITUTE DIP EXAM MATUNGA MUMBAI-19

BOS VJTI Approval Dt. 23/5/2025

DIPLOMA PROGRAMME	**: DIPLOMA IN TEXTILE ENGINEERING**
PROGRAMME CODE	**: DTE**
SEMESTER	**: FIFTH**
COURSE TITLE	**: TECHNICAL TEXTILES -I**
COURSE CODE	**: 236TE55**

1.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
											FA-PR (CA)		SA-PR (PR/OR)		SLA		
						Max	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	
4	2	-	-	3	3	30	70	28	100	40	25	10	-	-	-	-	125

Total IKS Hrs for Sem.: 0 Hrs

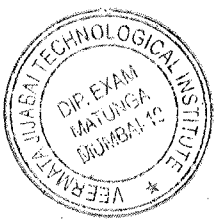
Abbreviations: CL- Classroom Learning, TL- Tutorial Learning, LL-Laboratory Learning, FA - Formative Assessment, SA -Summative Assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment

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

Course Category: Discipline Specific Course Core (DSC): 1

II. RATIONALE

Technical textiles have gained significant importance due to their wide-ranging applications across industries such as healthcare, agriculture, automotive, aerospace, and packaging. Unlike conventional textiles, which focus primarily on aesthetics and comfort, technical textiles emphasize on functionality, performance, and innovation. This curriculum is designed to equip students with a comprehensive understanding of technical textiles, with a special focus on nonwovens, specialty fibers, textile composites, and application-based textiles such as agrotextiles and packaging textiles. The curriculum ensures a holistic understanding of technical textiles, covering materials, production processes, and applications.



III.COURSE OUTCOMES (COs)

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

- CO1 – Identify and describe different web forming techniques
- CO2 – Compare and explain various web bonding techniques
- CO3 – Classify technical textiles and describe the properties, production methods, and applications of specialty and high-performance fibers
- CO4 – Utilize material properties and manufacturing techniques to produce medical textiles for specific applications
- CO5 – Choose materials, manufacturing process and parameters for agrotextiles and packaging textiles as per application
- CO6 – Select geotextile type and properties based on application and function

IV. COURSE CONTENTS WITH SPECIFICATION TABLE

SECTION – I								
Unit & Sub-Unit		Topics/Subtopics	Hours	Marks	COs	R Level	U Level	A Level
1		**Introduction to non-woven and Web forming techniques**	**06**	**07**	**CO1**	**30%**	**40%**	**30%**
	1.1	Definition, Properties, Classification, Raw- materials fibres, Binding agents	02					
	1.2	Web formation techniques: Parallel laid webs, Cross laid webs, Random laid webs, Air laid webs and Wet laid	04					
2		**Web bonding techniques and applications**	**14**	**15**	**CO2**	**30%**	**40%**	**30%**
	2.1	Thermal bonding – Hot calendaring – area bonding, point bonding and Embossing, Belt Calendaring, through air bonding, Ultrasonic bonding	04					
	2.2	Chemical (Adhesive) bonding – Bonding Process, bonding methods - Saturation, Foam, Spray, Print and powder bonding.	04					
	2.3	Polymer laid web formation: Principles, Physical properties of spun-bonded and Melt-blown nonwovens	02					
	2.4	Mechanical bonding – Needle Punching looms: Classification, Needle types and characteristics, Factors affecting production Spunlace nonwoven (Hydroentanglement) : Principles and Physical properties	04					

3		**Introduction to Technical Textile and Speciality and High Performance Fibres**	**12**	**13**	**CO3**	**40%**	**40%**	**20%**
	3.1	Definition, Significance, Difference between technical textiles and apparel textiles, Classification of technical textiles	02					
	3.2	Ultra fine, micro fibres, nano fibers, Hollow fibers	02					
	3.3	Carbon, Aramid, Glass and HDPE fiber: Introduction, spinning, fiber manufacture, structure and properties, applications.	08					
SECTION – II								
Unit & Sub-Unit		**Topics/Subtopics**	**Hours**	**Marks**	**COs**	**R Level**	**U Level**	**A Level**
4		**Medical Textiles**	**12**	**13**	**CO4**	**40%**	**40%**	**20%**
	4.1	Characteristics of medical materials and classification. Commodity and Specialty fibers for medical applications	02					
	4.2	Textiles for implant: Sutures, Soft tissue, Hard tissue, Vascular, Biomaterials for ophthalmology, Dental Biomaterials Non-implantable textiles: Wound care dressings, bandages Extracorporeal devices: Artificial kidney, lung and liver	06					
	4.3	Healthcare and hygiene products: surgical gowns, cloths, wipes, sanitary pads, masks etc.	04					
5		**Agrotextiles and Packaging Textiles**	**08**	**09**	CO5	40%	60%	-
	5.1	Agrotextiles: Functional properties, advantages, applications Agronet types: Properties and functional requirements	05					
	5.2	Packaging textiles: Flexible Intermediate Bulk Containers (FIBC), Soft luggage, Application, types and materials	03					
6		**Geo Textiles**	**12**	**13**	CO6	40%	40%	20%
	6.1	Types of geotextiles: Geogrids, geomembranes and woven and nonwoven geotextiles	03					
	6.2	Function of geotextiles: Separation, filtration, reinforcement, drainage and protection.	03					

	6.3	Geotextile properties: Physical, mechanical, hydraulic, environmental	03					
	6.4	Application of geotextiles: Roadwork, railway works, erosion control, drainage systems	03					
Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms's Revised Taxanomy).								

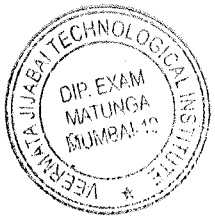
V. LIST OF TUTORIALS

Sr. No.	Tutorial Title	No. of Hours	Relevant COs
1	Study the usage of nonwovens for various industrial applications. Identify major nonwoven manufacturers in India and globally.	02	CO1
2	Collect five nonwoven samples and determine the method of their manufacture and application	02	CO1
3	Explain the principle of spunbond and meltblown technologies. Compare physical properties and applications of these nonwovens in medical, hygiene, and filtration sectors.	02	CO2
4	Collect recent data about different types of technical textiles used /consumed in India (kg/meters/Rupees). Present the data in graphical form (Pie chart or bar chart)	02	CO3
5	Prepare a report on aramid and carbon fibers. Include their production, structure, properties, and major industrial applications. Identify domestic and global manufactures / suppliers of these fibers and India's position as importer/exporter for these fibers in global market.	02	CO3
6	Collect five technical textile samples and classify them as per the use in respective segment	02	CO3
7	Analyze the structure of any one woven technical textiles sample collected. Determine the fiber, yarn and fabric properties for the chosen nonwoven /woven sample.	02	CO4, CO5, CO6
8	Analyze the structure of any one nonwoven technical textiles sample collected. Determine the fiber, yarn and fabric properties for the chosen nonwoven /woven sample.	02	CO4, CO5, CO6
9	Compare the properties of analyzed nonwoven technical textile sample with commercially available products in market.	02	CO4, CO5, CO6
10	Compare the properties of analyzed woven technical textile sample with commercially available products in market.	02	CO4, CO5, CO6

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

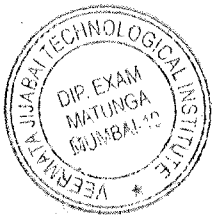
VII. SUGGESTED COS-POS MATRIX FORM

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	-	1	-	1	3	1
CO2	3	1	1	-	-	-	2	3	1
CO3	3	2	2	-	1	1	2	3	2
CO4	3	2	2	-	3	1	2	3	2
CO5	3	2	2	-	3	1	2	3	2
CO6	3	2	2	-	3	-	2	3	2

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	J W S Hearle	High Performance fibres	Woodhead Publishing Ltd
2	Sabit Adanaur	Wellington Sear's Handbook of Industrial Textiles	Technomic Publishing Co. Inc, 1995
3	Edited by A R Horrocks and S C Anand	Hand book of Technical Textiles	Woodhead Publication Ltd, 2000
4	Annapoorani S.G.	Agro Textiles and its Applications	Woodhead Publishing India Pvt Ltd



5	Bartels V.	Handbook of Medical Textiles, 1st Edition	Woodhead Publishing, India

IX. LEARNING WEBSITES & PORTALS

Sr. No	Link / Portal	Description
1	https://nptel.ac.in/courses/116102014	Nonwoven Technology, IIT Delhi Dr. Dipayan Das
2	https://nptel.ac.in/courses/116102057	Technical Textiles, IIT Delhi Dr. Apurba Das
3	https://nptel.ac.in/courses/116102006	High Performance and Specialty Fibres, IIT Delhi Dr. Manjeet Jassal
4	https://www.edana.org/nw-related-industry/how-are-nonwovens-made	Nonwoven
5	https://www.unitika.co.jp/nonwoven/e/about/	Nonwoven
6	https://textechindustries.com/capabilities/non-woven-fabrics/	Nonwoven
7	https://en.wikipedia.org/wiki/Medical_textiles	Medical textile
8	https://www.earthshields.com/	Geotextile
9	https://satyendragroup.com/ https://knackpackaging.com/	Packaging textiles
10	https://eyouagro.com/ https://www.greenproventures.com/#	Agrotextile

Curriculum coordinator

Head of the Department

Dean Diploma

VJTI MUMBAI TECHNOLOGICAL INSTITUTE DIP EXAM MATUNGA MUMBAI-19

BOS VJTI Approval Dt. 23/5/2025

DIPLOMA PROGRAMME	**: DIPLOMA IN TEXTILE ENGINEERING**
PROGRAMME CODE	**: DTE**
SEMESTER	**: FIFTH**
COURSE TITLE	**: MARKETING MANAGEMENT**
COURSE CODE	**: 236TE56**

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
											FA-PR (CA)		SA-PR (PR/OR)		SLA		
						Max	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	
3	1	-	1	2.5	3	30	70	28	100	40	25	10	-	-	25	10	150

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	Understand dynamics of marketing in business.
CO2	Understand the consumer behavior and its implications in marketing.
CO3	Understand the various elements of product development and pricing.
CO4	Understand the various elements of place and promotion mix and also different strategie and promotion to be used in business.
CO5	Understand the importance of supply chain management in market.
CO6	Understand the theoretical marketing concepts to the practical situations.

III. COURSE CONTENTS WITH SPECIFICATION TABLE

SECTION-I								
Unit & Sub Unit		Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
1		**Scope and Functions OF Management**	08	12	CO1	30%	30%	40%
	1.1	Definition of Management, Importance of Management, Nature of Management.		6				
	1.2	Functions of Management, Marketing Concepts.		6				
2		**Consumer and Organizational Buying Behavior**	08	12	CO 2	30%	30%	40%
	2.1	Definition of consumer buying behavior, Stages of consumer buying process, Factors affecting on consumer buying behavior.		6				
	2.2	Characteristics of organizational buyers, Stages of organizational buying process, Factors affecting organizational buying behavior, marketing mix variables.		6				
3		**Product Planning, Development and Pricing**	08	12	CO3	20%	40%	40%
	3.1	Meaning of Product, Classification, New product development including test marketing, Product line decision, Product life cycle.		6				
	3.2	Policies and strategies, Factors affecting pricing, pricing under different market condition, Types of pricing.		6				

SECTION-II								
Unit & Sub - Unit		Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
4		**Place and Promotion**	08	12	CO4	30%	30%	40%
	4.1	Place: Channel, physical distribution		6				
	4.2	Meaning of promotion mix, Objective, Element of promotion mix, Integrated marketing communication.		6				
5		**Supply Chain Management**	08	10	CO5	30%	30%	40%
	5.1	Logistics: Ware housing, Transportation Management.		4				

	5.2	Physical Distribution: Meaning & objective, Role, & relevance of physical distribution in Indian, Inventory & transportation.		6				
6		**Market Segmentation**	**08**	**12**	**CO6**	**30%**	**30%**	**40%**
	6.1	Types of Market Segmentation, Target and Position.						
	6.2	Forecasting market future demand, Techniques of forecasting, Law of demand and supply.						
			48	70				

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

V. LIST OF TUTORIALS

Sr. No.	Tutorial title	Approx. Hours	CO
1	Develop a Marketing Plan for a New Product or Service	2	CO1
2	SWOT and PESTLE Analysis of a Major Brand	2	CO1
3	Study on Consumer Buying Behavior for a Specific Product Category	2	CO2
4	Design a Market Research Project Using Primary and Secondary Data	2	CO2
5	Evaluate a Brand's Digital Marketing Strategy	2	CO3
6	Create a Social Media Campaign for a Startup	2	CO3
7	Study the Global Marketing Strategy of a Multinational Company	2	CO4
8	Study the Ethical Issues in Marketing: A Case Study Approach	2	CO4
9	An overview on Retail Marketing and Merchandising Strategy	2	CO5
10	Design a Sales Strategy and Distribution Channel for a New Product	2	CO5
11	Brand Positioning and Rebranding Strategy Case Study	2	CO6

VI. LIST OF SELF LEARNING ASSIGNMENTS

Sr. No.	Self Learning Assignment Title	Approx. Hours	Learning CO
1	Explain the systematic way for improvement in business.	1	CO1
2	Give the case study for consumer and organizational buying behavior.	1	CO2
3	Explain the role of 3P in textile marketing.	1	CO3
4	Explain the various method that are used for promotion.	1	CO4
5	Explain the schematic diagram of supply chain in textile.	1	CO5
6	Explain the forecasting and trends in the market.	1	CO6

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	3	1
CO2	3	-	2	-	3	2	3	3	2
CO3	3	3	2	-	2	2	3	3	3
CO4	3	-	-	-	2	1	3	2	2
CO5	3	1	2	-	2	2	3	3	3
CO6	3	1	3	-	1	3	3	3	2

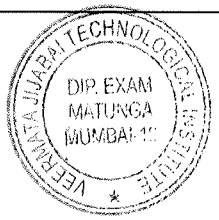
Legends :- High:03, Medium:02, Low:01, No Mapping: -

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	Tapan Panda	Marketing Management	2nd Ed, Excel Publication
2	Arun Kumar & Meenakshi N	Marketing Management	2nd Ed, Vikas publication
3	P C Tripathi & P N Reddy	Principles of Management	5th Ed, McGraw Hill Education (India) PVT.
4	Kotler, Keller, Koshy and Jha	Marketing Management, South Asian Perspective	13th Ed, Pearson Education



5	Ramaswamy V. S. & Namakumari	Marketing Management	4th Ed, TMH.
6	Module Note	Market Segmentation, Target Market Selection, and Positioning	Harvard Business School

Curriculum Coordinator

Head of the Department

Dean Diploma

BOS VJTI Approval Dt. 23/5/2025

DIPLOMA PROGRAMME	**: DIPLOMA IN TEXTILE ENGINEERING**
PROGRAMME CODE	**: DTE**
SEMESTER	**: FIFTH**
COURSE TITLE	**: PROFESSIONAL PRACTICE**
COURSE CODE	**: 236TE57**

I. 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
													FA-PR (CA)		SA-PR (PR/OR)		SLA		
							Max	Max	Min	Max	Min		Max	Min	Max	Min	Max	Min	
-	-	2	-	-	1	-	-	-	-	-	-		25	10	-	-	-	-	25

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: Skill Enhancement Course (SEC) : 1,

II.RATIONALSE

It emphasizes the importance of applying the theoretical knowledge to real-world situations and developing practical skills through hand-on experience in the field. It highlights integration of formal learning with actual environment.

III.COURSE OUTCOMES (COs)

Student should be able to

CO1	Understand the importance of personality development and motivation
CO2	Acquire the knowledge of drafting digital content
CO3	Develop teamwork and analytical thinking through group discussions and presentation
CO4	Acquire knowledge of writing technical reports for industry visits
CO5	Interact with peers to share thoughts regarding industry and new mechanisms

V. LIST OF TUTORIALS

Sr. No.	Tutorial Title	No. of Hours	Relevant COs
1	Conduct a mock interview. Observe the behaviour of the candidate with respect to his body language, interaction, confidence and suggest measures for improvement.	2	CO1
2	Draft a digital content for communication on e-mail, Whatsapp etc.	2	CO2
3	Conduct a debate in the class debate. Analyse the debate conducted and find the shortcomings. Suggest measures / points needed to improve the performance.	2	CO3
4	Conduct a group discussion in the class on a given topic. Analyse the group discussion and find the shortcomings. Suggest measures / points needed to improve the performance.	2	CO3
5	Read the Case study and answer the questions.	2	CO3
6	Write a report on the visit to a textile industry and highlight your learnings with regards to the following: History of the company Machinery seen Products manufactured Relevance to the curriculum of your syllabus	2	CO4
7	Prepare a business presentation to be presented to a client regarding the company products / board members about the company performance.	2	CO5

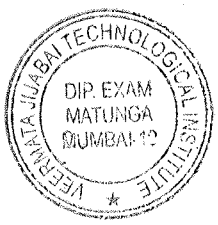
VI. ASSESSMENTS METHODOLOGIES /TOOLS

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	2	1	-	-	-	3	1	-
CO2	3	2	1	-	-	-	3	1	-
CO3	3	2	1	-	-	-	3	1	-
CO4	3	2	1	-	-	-	3	1	-
CO5	3	2	1	-	-	-	3	1	-
CO6	3	2	1	-	-	-	3	1	-

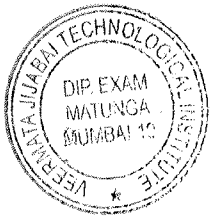
Legends: High:03, Medium:02, Low:01, No Mapping:

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.

VIII. SUGGESTED LEARNING MATERIALS TEXTBOOKS/REFERENCE BOOKS/WEBSITES

Sr. No.	Author	Title	Publisher and Edition
1	Kavita Singh	Organisational Behaviour: Text and Cases	Pearson Education
2	Pareek, Udai	Understanding Organisational Behaviour	Oxford University Press
3	Robbins, S.P. & Judge	Organisational Behaviour	Pearson Education



4	Albrecht, K	*Brain Power: Learning to Improve Your Thinking Skills*	New York: Simon and Schuster

IX. LEARNING WEBSITES & PORTALS:

Sr. No	Link / Portal	Description
1	https://grow.google/certificates/interview-warmup/	
2	https://www.yourpedia.in/blog/Group-Discussion-Preparation	
3	https://deepai.org/chat/debate	

Curriculum coordinator

Head of the Department

Dean Diploma

BOS VJTI Approval Dt. 23/5/2025

VJTI MUMBAI TECHNOLOGICAL INSTITUTE DIP EXAM MATUNGA MUMBAI-19

DIPLOMA PROGRAMME	**: DIPLOMA IN TEXTILE ENGINEERING**
PROGRAMME CODE	**: DTE**
SEMESTER	**: FIFTH**
COURSE TITLE	**: PROJECT (MINOR)**
COURSE CODE	**: 236TE58**

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
												FA-PR (CA)		SA-PR (PR/OR)		SLA		
						Max		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	
-	-	6	-	3	-	-		-	-	-	-	50	20	50#	20	-	-	100

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: Internship/Apprentice/Project/Community (INP): 1

II. RATIONALE

Students are introduced to the subject of Project to improve their confidence and fluency levels. The project provides an opportunity to read research papers and orient themselves for presentations, research paper writing and interact verbally and present their work in front of a gathering with expert help. Seminar presentation boosts the confidence of the students and prepares them precisely for facing the interview panels and group discussions. Through this subject on Project, students will develop new ideas and perspectives of the subject /themes of emerging technologies and services of their area of studies. Projects may even lead to innovations and startups due to their deep study in their chosen subject during the

DIPLOMA PROGRAMME	**: DIPLOMA IN TEXTILE ENGINEERING**
PROGRAMME CODE	**: DTE**
SEMESTER	**: FIFTH**
COURSE TITLE	**: PROJECT (MINOR)**
COURSE CODE	**: 236TE58**

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
											FA-PR (CA)		SA-PR (PR/OR)		SLA		
						Max	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	
-	-	6	-	3	-	-	-	-	-	-	50	20	50#	20	-	-	100

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

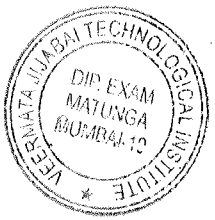
Legends: @ Internal Assessment, # External Assessment, *# Online Examination, @$ Internal Online Examination

Course Category: Internship/Apprentice/Project/Community (INP): 1

II. RATIONALE

Students are introduced to the subject of Project to improve their confidence and fluency levels. The project provides an opportunity to read research papers and orient themselves for presentations, research paper writing and interact verbally and present their work in front of a gathering with expert help. Seminar presentation boosts the confidence of the students and prepares them precisely for facing the interview panels and group discussions. Through this subject on Project, students will develop new ideas and perspectives of the subject /themes of emerging technologies and services of their area of studies. Projects may even lead to innovations and startups due to their deep study in their chosen subject during the term.

III. COURSE OUTCOMES (COs)



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

- CO1 - Collect relevant and updated research-based data and information to prepare a statement of purpose for the project.
- CO2 - Establish the action plan for the successful completion of the project under the guidance of an expert guide in the department.
- CO3 - Use various presentation tools and skills for presenting the project work in front of an expert panel.

IV. GENERAL GUIDELINES FOR PROJECT PREPARATION, PRESENTATION AND SUBMISSION OF THE FINAL PROJECT REPORT

a) Batches of students/sometimes individuals shall be formed for projects as decided by the Project Supervisor. The Project Supervisor shall be a faculty of the respective department.

b) Students shall identify the problem statement and finalise the topic for the project in consultation with their faculty supervisors.

c) Students shall study and assess the feasibility of different solutions and the financial implications.

d) Students should collect relevant data from different sources books / internet / market / suppliers / experts through surveys / interviews). Students shall prepare required drawings/ designs and detailed plans for the successful execution of the work.

e) Students shall present their work on the project at the end of the term in front of the expert panel as framed by the department. They shall submit their ppts to their Project Supervisors for records.

f) Students shall submit two copies of their final Project Reports bound in Maroon colour hardbound book format to their Project Supervisor. One copy shall be retained by the Supervisor and the other copy shall be kept with the Department Head. Students may prepare multiple copies for their own records as required.

1.Organisation of the Project report

The report shall be presented in a number of chapters, starting with Introduction and ending with Summary and Conclusions. Each of the other chapters will have a precise title reflecting the contents of the chapter. A chapter can be subdivided into sections, subsections and sub-subsections so as to present the content discretely and with due emphasis.
When the work comprises two or more mutually independent investigations, the report may be divided into two or more parts, each with an appropriate title. However, the numbering of chapters will be continuous right through, for example Part 1 may comprise Chapters 2-5, Part Two, Chapters 6-9.

The report shall be presented in following sequence:

1. Title sheet
2. Dedication sheet (if desired)
3. Declaration of the Candidate
4. Approval Sheet
5. Abstract
6. Table of contents
7. List of tables (if desired)
8. List of Figures (if desired)
9. Abbreviations / Notations / Nomenclature (if desired)
10. Chapter One : Introduction
11. Chapter Two: Literature Review
12. Chapter/s : Report of Materials and Methods used in the Project work
13. Chapter : Results & Discussions
14. Chapter : Summary & Conclusions
15. Appendix / Appendices (if any)
16. References
17. Acknowledgements

Spiral Binding

Front Cover

The front cover shall contain the following details:

- Full title of report in 6 mm 22 point's size font properly centered and positioned at the top.
- Full name of the candidate/s in 4.5 mm 15 point's size font properly centered at the middle of the page.
- A 40 mm dia. replica of the Institute emblem followed by the name of department, name of the Institute and the year of submission, each in a separate line and properly centered and located at the bottom of page.
- All lettering shall be embossed in gold.

Side of the Hardbound Cover

- The Diploma awarded e.g. DTE, the name of the candidate and the year of submission shall also be embossed on the bound (side) in gold.
- Blank Sheets In addition to the white sheets (binding requirement) two white sheets shall be put at the beginning and the end of the thesis.

1. Title Sheet

This shall be the first printed page of the report and shall contain the submission statement:

The Project Report submitted in partial fulfillment of the requirements of the Diploma in (name of the Diploma awarded), by (the name of candidate) and Roll No. (of the candidate), name(s) of the Project Supervisor / Co- supervisor (s) / Co-Guide(s) (if any), Department, Institute and year of submission.

Sample copy of the 'Title Sheet' is appended (Specimen 'A')

2. Dedication Sheet

If the candidate so desires(s) he may dedicate his/her thesis, which statement shall follow the title page. If included, this shall form the page 1 of the auxiliary sheets but shall not have a page number.

3. Declaration of the Candidate

A declaration of Academic honesty and integrity is required to be included along with every report before the approval sheet.

The format of this declaration is given in Specimen `B' attached.

4. Approval Sheet

In the absence of a dedication sheet this will form the first page and in that case shall not have a page number. Otherwise, this will bear the number two in Roman lower case "ii" at the center of the footer.

Sample copy of the 'Approval Sheet' is appended (Specimen `C')

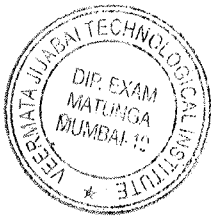
5. Abstract

The 500 word abstract shall highlight the important features of the report and shall correspond to the electronic version to be submitted to the library for inclusion in the website. The Abstract in the project report, however, shall have two more parts, namely, the layout of the thesis giving a brief chapter wise description of the work and the key words.

6. Table of Contents

The contents shall follow the Abstract and shall enlist the titles of the chapters, section and subsection using decimal notation, as in the text, with corresponding page number against them, flushed to the right.

7. & 8. List of Figures and Tables



Two separate lists of Figure captions and Table titles along with their numbers and corresponding page numbers against them shall follow the Contents.

9. Abbreviation Notation and Nomenclature

In general, no abbreviations should be used in the text except for technical terms. A complete and comprehensive list of all abbreviations, notations and nomenclature including Greek alphabets with subscripts and superscripts shall be provided after the list of tables and figures. (As far as possible, generally accepted symbols and notation should be used).

10. Introduction

The title of Chapter 1 shall be Introduction. It shall justify and highlight the problem posed, define the topic and explain the aim and scope of the work presented in the thesis. It may also highlight the significant contributions from the investigation.

11. Review of Literature

This shall normally form Chapter 2 and shall present a critical appraisal of the previous work published in the literature pertaining to the topic of the investigation. The extent and emphasis of the chapter shall depend on the nature of the investigation.

12. Report of Materials and Methods used in the Project work

The reporting on the investigation shall be presented in one or more chapters with appropriate chapter titles. Due importance shall be given to experimental setups, procedures adopted, techniques developed, methodologies developed and adopted.

While important derivations / formulae should normally be presented in the text of these chapters, extensive and long treatments, copious details and tedious information, detailed results in tabular and graphical forms may be presented in Appendices.

- Representative data in tables and figures may, however, be included in appropriate chapters.
- Figures and tables should be presented immediately following their first mention in the text. Short tables and figures (say, less than half the writing area of the

page) should be presented within the text, while large tables and figures may be presented in

separate pages.

- Equations should form separate lines with appropriate paragraph separation above and below the equation line, with equation numbers flushed to the right.

13. Results and Discussions

This shall form the penultimate chapter of the thesis and shall include a thorough evaluation of the investigation carried out and bring out the contributions from the study. The discussion shall logically lead to inferences and conclusions as well as scope for possible further future work.

14. Summary and Conclusions

This will be the final chapter of the thesis. A brief report of the work carried out shall form the first part of the Chapter. Conclusions derived from the logical analysis presented in the Results and Discussions Chapter shall be presented and clearly enumerated, each point stated separately. Scope for future work should be stated lucidly in the last part of the chapter.

15. Appendix

Detailed information, lengthy derivations, raw experimental observations etc. are to be presented in the separate appendices, which shall be numbered in Roman Capitals (e.g. "Appendix IV"). Since reference can be drawn to published / unpublished literature in the appendices these should precede the "Literature Cited" section.

16. References / Literature Cited

This should follow the Appendices, if any, otherwise the Summary and Conclusions Chapter. The candidates shall follow the style of citation and style of listing in one of the standard journals in the subject area consistently throughout his / her thesis, for example, IEEE in the Department of Electrical Engineering, Materials Transactions in Department of Metallurgical Engineering and Materials Science. However, the names of all the authors along with their initials and the full title of the article /monogram / book etc. have to be given in addition to the journals / publishers, volume, number, pages(s)and year of publication. Citation from websites should include the names(s) of author(s) (including the initials), full title of the article, website reference and when last accessed. Reference to personal communications, similarly, shall include the author, title of the communication (if any) and date of receipt.

Publications by the candidate, articles, technical notes etc. in the topic of the thesis published by the candidate may be separately listed after the literature cited. This may also be included in the

contents. The candidates may also include reprints of his / her publications after the literature citation.

Format for Entry in reference / Bibliography:

For paper published in Journal:

Name/s of Author/s, (Year of Publication), "Title of the paper", Title of the Journal, Volume No, page no e.g.

Berny, J. (1889), "A new distribution function for risk analysis", Journal of the Operational Research Society, Vol. 40, pp.1121-7

For text/reference book:

Name/s of Author/s, (Year of Publication), Title of the book, Name of Publisher, Place e.g.

Canvas, G.C. (1984), Applied probability and statistical methods, Little, Brown & Company, Boston

For Thesis / Dissertation:

Name of the researcher, (Year of submission), Name of University, Place e.g.

Dey, P.K. (1997), "Symbiosis of organizational re-engineering for effective implementation of projects" Doctoral thesis, Jadhavpur University, Calcutta

17. Acknowledgements

The acknowledgments by the candidate shall follow the citation of literature, signed by him/her, with date.

1 THESIS FORMAT

1.1 Paper

1.1.1 Quality

The thesis shall be printed / xeroxed on white bond paper, whiteness 95% or above, weight 70 gram or more per square meter.

1.1.2 Size

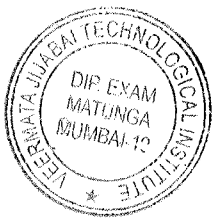
The size of the paper shall be standard A 4; height 297 mm, width 210 mm.

1.1.3 Type, Setting, Text Processing and Printing

The text shall be printed with Portrait orientation employing laser-jet or Inkjet printer, the text having been processed using a standard text processor. The standard font shall be Times New Roman of 12 pts with 1.5 line spacing and Justified alignment.

1.1.4 Page Format

The Printed Sheets shall have the following written area and margins:



Top Margin 15 mm

Head Height 3 mm

Head Separation 12 mm

Bottom Margin 22 mm

Footer 3 mm

Foot Separation 10 mm

Text Height 245 mm

Text Width 160 mm

When header is not used the top margin shall be 30 mm. Left and

Right margins

The candidates shall have the options of single or double sided printing.

- Single sided/odd number page (in double sided printing) Left

  Margin 30 mm

  Right Margin 20 mm

- Double sided even numbered page Left

  Margin 20 mm

  Right Margin 30 mm

1.1.5 Pagination

Page numbering in the text of the thesis shall be Hindu Arabic numerals at the center of the footer. But when the candidate opts for header style the page number shall appear at the right and left top corner for the odd and even number pages, respectively.

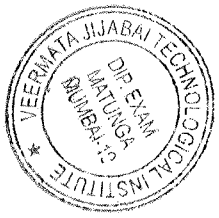
Page number "1" for the first page of the Introduction chapter shall not appear in print, only the second page will bear the number "2".

The subsequent chapters shall begin on a fresh page (fresh odd number page in case of double-sided printing). When header style is chosen the first page of each chapter will not have the header and the page number shall be printed at the center of the footer.

Pagination for pages before the Introduction chapter shall be in lower case Roman numerals, e.g., "iv".

1.1.6 Header

When the header style is chosen, the header can have the Chapter number and Section number (e.g., Chapter 2, Section 3) on even numbered page headers and Chapter title or Section title on the odd numbered page header.



1.1.7 Footer

The Footer shall contain title, student name and page numbers in following format

Report Title *Student Name* *Page Number*

1.1.8 Paragraph format

Vertical space between paragraphs shall be about 2.5 line spacing. The first line of each paragraph should normally be indented by five characters or 12mm. A candidate may, however, choose not to indent if (s) he has provided sufficient paragraph separation.

A paragraph should normally comprise more than one line. A single line of a paragraph shall not be left at the top or bottom of a page (that is, no windows or orphans should be left). The word at the right end of the first line of a page or paragraph should, as far as possible, not be hyphenated.

1.2 Chapter and Section Format

1.2.1 Chapter

Each chapter shall begin on a fresh page (odd number page in case of double sided printing) with an additional top margin of about 75mm. Chapter number (in Hindu Arabic) and title shall be printed at the center of the line in 6mm font size (18pt) in bold face using both upper and lower case (all capitals or small capitals shall not be used). A vertical gap of about 25mm shall be left between the Chapter number and Chapter title lines and between chapter title line and the first paragraph.

1.2.2 Sections and Subsections

A chapter can be divided into Sections, Subsections and Sub-subsections so as to present different concepts separately. Sections and subsections can be numbered using decimal points, e.g. 2.2 for the second section in Chapter 2 and 2.3.4 for the fourth Subsection in third Section of Chapter 2. Chapters, Sections and Subsections shall be included in the contents with page numbers flushed to the right. Further subsections need not be numbered or included in the contents.

The Section and Subsection titles along with their numbers in 5 and 4mm (16 and 14 pt) fonts, respectively, in bold face shall be flushed to the left (not centered) with 15 mm space above and below these lines.

In further subdivisions character size of 3 and 3.5 with bold face, small caps, all caps and italics may be used for the titles flushed left or centered. These shall not feature in the contents.

1.2.3 Table / Figure Format

As far as possible tables and figures should be presented in portrait style. Small size table and figures (less than half of writing area of a page) should be incorporated within the text, while larger ones may be presented on separate pages. Table and figures shall be numbered chapter wise. For example, the fourth figure in chapter 5 will bear the number Figure 5.4 or Fig 5.4

Table number and title will be placed above the table while the figure number and caption will be located below the figure. Reference for Tables and Figures reproduced from elsewhere shall be cited in the last and separate line in the table and figure caption,

e.g. (after McGregor [12]).

2 Auxiliary Format

2.1 Binding

The evaluation copies of the thesis / dissertation / report may be spiral bound or soft bound. The final hard bound copies to be submitted after the viva-voce examination will be accepted during the submission of report with the Maroon colour binding.

Typographical guidelines for Project Report:

Following is the suggestive format for preparing the Project report. Actual report may differ slightly depending upon the nature of project. The project report may contain the following

a) The project report shall be computer typed (English-British) and printed on A4 size paper.

b) Text Font -Times New Roman (TNR), Size-12 point

c) Subsection heading TNR- 12 point bold normal

d) Section heading TNR- 12 capital bold

e) Chapter Name/ Topic Name – TNR- 14 Capital

f) All text should be justified. (Settings in the Paragraph)

g) The report must be typed with 1.5 spacing with a margin 3.5 cm on the left, 2.5 cm on the top, and 1.25 cm on the right and at bottom.

h) The project report must be hardbound in maroon colour. The name of the candidate, diploma (department), year of submission, name of the institute shall be printed on the cover [Refer sample sheet (outer cover)]

i) The training report, the title page should be given first then the Certificate followed by the acknowledgment and then contents with page numbers.

Specimen 'A': Title Sheet

Title of the diploma programme: (example)

Diploma in Textile Engineering (DTE)

Project Report Titled
(Title of the Report)

submitted in partial fulfillment of
the requirements of

Diploma in (branch)

by

(Name of the student)
(Registration number)

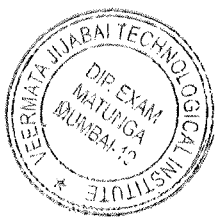
under the guidance of
(Name of the Supervisor)

(Name of the Department)

Veermata Jijabai Technological Institute

Mumbai 400 019

(Year of Submission)



Specimen `B' Declaration of the Candidate

Declaration of the Candidate

I declare that this written submission represents my ideas in my own words, where others' ideas or words have been included. I have adequately cited and referenced the original sources.

I also declare that I have adhered to all principles of academic honesty, integrity and have not misrepresented or fabricated or falsified any idea/ data/ fact/ source in my submission.

I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

Signature of the candidate: _____

Name of the candidate: _____

Registration Number: _____

Date: _____

Specimen `C' Approval Sheet

CERTIFICATE

This is to certify that (Name of the Student), a student of (name of the Programme), has completed the Project report entitled "(Title of the project)" to our satisfaction.

The project report submitted by (Name of the student) is approved for the Diploma in (branch) Engineering (short form of branch).

(Name & Signature)
Supervisor

(Name & Signature)
External Examiner

(Name & Signature)
Co- Supervisor

(Name & Signature)
Head, Name of Department

Date:_____

Place:_____

V. ASSESSMENTS METHODOLOGIES /TOOLS

1. Formative assessment (Assessment for Learning)

A. Suggestive RUBRICS for assessment

Academic year: 20___-20___

Title of the Project: _____

Marks: Max 100, Min 40

Based on the following criteria

Sr No	Criteria	Marks 100
1	Selection of Topic	10
2	Literature review and data collection	25
3	Quality of preparation during the Project period	15
4	Time Management	15
5	Innovativeness of the Topic	10
6	Stages of development of the action plan	25
5	Seminar Presentation report	10

Name of Supervisor: _____

Signature of Supervisor: _____

B. Suggestive RUBRICS for summative assessment

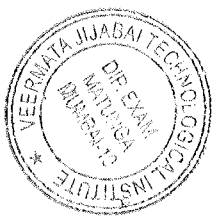
Academic year: 20___-20___

Title of the Project: _____

Marks: Max 100, Min 40

Based on the following

The summative assessment of the students shall be based on the Presentation of the Project at the End of the Term in the form of Powerpoint presentation, Project report and Assessment by the External Examiner. Out of the Total 100 marks 50 marks shall be allotted by the



Supervisor and 50 marks will be awarded by the External Examiner on the basis of the following criteria. The total marks of 20 shown in the column below shall be equally divided between the Supervisor and the External Examiner.

Sr No	Criteria	Marks 100
1	Quality of information/Knowledge/Creativity/Innovation presented in the Project Work.	20
2	Type of the project (Industrial / Practically implemented / Study etc.)	20
3	Response to the question during the presentation	20
4	Response to the question during seminar presentation	20
5	Quality / Timely submission of the Final Project report	20

Name of Supervisor: _____ Name of External Examiner: _____

Signature of Supervisor: _____ Signature of External Examiner: _____

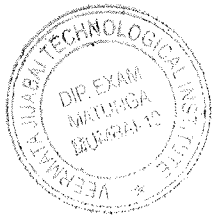
VI. SUGGESTED COS-POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)	
	PO-1 Basic an 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	-	-	3	3	2	-
CO2	3	3	1	-	-	3	3	2	-
CO3	-	-	-	-	-	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.



Curriculum Coordinator

Head of the Department

Dean Diploma

BOS VJTI Approval Dt. 23/05/2025