

MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION

Diploma Programme in Textile Manufacturing

I – Scheme

Programme Structure

Programme Educational Objectives (PEOs) (*What s/he will continue to do even after 3-5 years of working in the industry*)

- PEO 1. Provide socially responsible, environment friendly solutions to Textile Manufacturing related broad-based problems adapting professional ethics.
- PEO 2. Adapt state-of-the-art Textile Manufacturing technologies to work in multi-disciplinary broad-based work environments.
- PEO 3. Solve broad-based problems individually and as a team member communicating effectively in the world of work.

Program Outcomes (POs) given by NBA. (*What s/he will be able to do at the entry point of industry soon after the diploma programme*)

- PO 1. **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Textile Manufacturing problems.*
- PO 2. **Discipline knowledge:** Apply Textile Manufacturing knowledge to solve broad-based textile manufacture related problems.*
- PO 3. **Experiments and practice:** Plan to perform experiments and practices to use the results to solve broad-based Textile Manufacturing problems.*
- PO 4. **Engineering tools:** Apply relevant Textile Manufacturing and tools with an understanding of the limitations.*
- PO 5. **The engineer and society:** Assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to practice in field of Textile Manufacturing.*
- PO 6. **Environment and sustainability:** Apply Textile Manufacturing solutions also for sustainable development practices in societal and environmental contexts.*
- PO 7. **Ethics:** Apply ethical principles for commitment to professional ethics, responsibilities and norms of the practice also in the field of Textile Manufacturing.*
- PO 8. **Individual and team work:** Function effectively as a leader and team member in diverse/ multidisciplinary teams.*
- PO 9. **Communication:** Communicate effectively in oral and written form.*
- PO 10. **Life-long learning:** Engage in independent and life-long learning activities in the context of technological changes also in the Textile Manufacturing and allied industry.*

Program Specific Outcomes(PSOs) (*What s/he will be able to do in the Textile Manufacturing specific industry soon after the diploma programme*)

- PSO 1. Textile Manufacturing Equipment:** Operate various types of textile manufacturing equipment for quality production at optimal cost.
- PSO 2. Textile Processes:** Produce different types of quality textile products at optimal costs.

Notes for All the Semesters

1. Every student has to **separately pass in End-Semester-Examination (ESE)** for **both theory and practical** by securing minimum of 40% marks, (i.e. 30 out of 75, 28 out of 70, 20 out of 50, and 10 out of 25).
2. **Progressive Assessment (PA) for Theory** includes Written Exam/micro projects/ Assignment/Quiz/Presentations/attendance according to the nature of the course. The scheme and schedule for progressive assessment should be informed to the students and discussed with them at the start of the term. This scheme should also be informed in writing to the principal of the institute.
3. Teachers need to give **marks judiciously for PA of theory and practicals** so that there is always a **reasonable correlation** between the **ESE marks** obtained by the student and the **PA marks** given by **respective teachers for the same student**. In case the PA marks in some courses of some students seems to be relatively inflated in comparison to ESE marks, then MSBTE may review the PA records of such students.
4. For developing self-directed learning skills, from each course about 15-20% of the topics/sub-topics, which are relatively simpler or descriptive in nature are to be given to the students for self-study and proper learning of these topics should be assured through classroom presentations by students (see implementation guideline for details).

Programme Code:I – Scheme Diploma Programme in Textile Manufacturing												
I – Semester												
Weighted mean score	S. No. & (Rank No.) of Report	Industry Questionnaire S.No.	Course Title	Teaching Scheme/Week			Credits (L+T +P)	Examination Scheme				
				L	T	P		Theory		Practical		Grand Total
								ESE	PA	ESE	PA	
3.34	G2(2)	37	English (Common to all)	3	-	2+	5	70	30*	25	25	150
2.79	26(21)	1	Basic Science	2	-	2	4	35	15*	25	25	200
2.21	35(30)	2	(Common to all) Physics Chemistry									
2.81	24(20)	4	Basic Mathematics (Common to all)	4	2	-	6	70	30*	-	-	100
3.22	G4(4)	45	Fundamentals of ICT (Common to all)	2#	-	2	4	-	-	25	25~ ¹	50
2.97	15(13)	6	Engineering Graphics Mech. Gp.(AE, ME, PT, FG, EE, CE, CH, PS, DC, TC, TX)	2#	-	4	6	-	-	50	50~ ²	100
3.24	3(2)	11	Workshop Practice (DC, TC, TX)	-	-	4	4	-	-	50	50~ ²	100
Total				15	2	16	33	210	90	200	200	700

(*): Under the theory PA, Out of 30 marks, 10 marks are for micro-project assessment (5 marks each for Physics and Chemistry) to facilitate integration of COs and the remaining 20 marks is the average of 2 tests to be taken during the semester for the assessment of the cognitive domain LOs required for the attainment of the COs; (+): Language Lab Practical (#):No theory Exam; (~):For the courses having ONLY practical examination, the PA has two parts – marks, for~¹ (i) practical part - 15 marks(60%) (ii) micro-project part - 10 marks (40%) and for~² (i) practical part - 30 marks (60%) (ii) micro-project part - 20 marks (40%).

Legends

L: Lecture **T:** Tutorial **P:** Practical **ESE:** End Semester Exam **PA:** Progressive Assessment

Note: Blue highlights are courses common to all programmes and yellow highlights are courses common with other specific programmes.

Programme Code:..... I - Scheme Diploma Programme in Textile Manufacturing												
II – Semester												
Weighted mean score	S. No. & (Rank No.) of Report	Industry Question naire S. No.	Course Title	Teaching Scheme/Week			Credits (L+T+ P)	Examination Scheme				
				L	T	P		Theory		Practical		Grand Total
								ESE	PA	ESE	PA	
3.63	13(7)	43	Elements of Electrical and Electronic Engineering (TX, TC)	4	-	2	6	70	30*	25	25	150
3.28	35(20)	20	Fundamentals of Mechanical Engineering (TX, TC)	4	-	2	6	70	30*	25	25	150
3.58	18(8)	9	Textile Mathematics	1#	-	2	3	-	-	25	25	50
3.21	28(14)	10	Mixing and Blow Room	4	-	2	6	70	30*	25	25	150
3.63	14(7)	11	Yarn Preparation for Weaving	4	-	2	6	70	30*	25@	25	150
3.92	3(2)	12	Fiber Testing	4	-	2	6	70	30*	25	25	150
3.34	G2(2)	37	Business Communication Using Computers (Common to all)	2\$	-	-	2	35\$	15	-	-	50
Total				23	-	12	35	385	165	150	150	850

(\$):Online Exam; (#):No theory Exam; (*): Under the theory PA, Out of 30 marks, 10 marks are for micro-project assessment to facilitate integration of COs and the remaining 20 marks is the average of 2 tests to be taken during the semester for the assessment of the cognitive domain LOs required for the attainment of the COs; @: with external examiner.

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III – Semester												
Weighted mean score	S. No. & (Rank No.) of Report	Industry Question naire S. No.	Course Title	Teaching Scheme/Week			Credits (L+T+ P)	Examination Scheme				
				L	T	P		Theory		Practical		Grand Total
								ESE	PA	ESE	PA	
3.58	16(8)	22,15	Carding and Combing	4	-	2	6	70	30*	25	25	150
3.88	4(3)	16	Warp Yarn Preparation	4	-	2	6	70	30*	25	25	150
3.42	22(10)	18,26	Elements of Wet Processing	4	-	2	6	70	30*	25	25	150
3.42	22(10)	40	Basics of Fiber Science	3	-	-	3	70	30*	-	-	100
3.92	3(2)	12	Yarn Testing	3	-	2	5	70	30*	25	25	150
		I/F	Textronics	2#	-	2	4	-	-	25	25 ⁻¹	050
Total				20	-	10	30	350	150	125	125	750

(\$):Online Exam; (*): Under the theory PA, Out of 30 marks, 10 marks are for micro-project assessment to facilitate integration of COs and the remaining 20 marks is the average of 2 tests to be taken during the semester for the assessment of the cognitive domain LOs required for the attainment of the COs; (⁻¹): For the courses having ONLY practical, the PA has two parts (i) practical part - 15 marks (60%) (ii) micro- project part - 10 marks (40%).

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IV – Semester												
Weighted mean score	S. No. & (Rank No.) of Report	Industry Questionnaire S. No.	Course Title	Teaching Scheme/Week			Credits (L+T+P)	Examination Scheme				
				L	T	P		Theory		Practical		Grand Total
								ESE	PA	ESE	PA	
3.58	17(8)	29	Roving and Ring Spinning	3	-	2	5	70	30*	25	25	150
3.83	6(4)	11	Principles of Weaving	4	-	2	6	70	30*	25	25	150
3.42	21(10)	24	Basic Knitting Technology	3	-	2	5	70	30*	25	25	150
3.92	2(2)	19	Fabric Structure Design	2	2	2	6	70	30*	25	25	150
3.3	11(23)		Basic Garment Technology	3	-	2	5	70	30*	25	25	150
3.25	25(13)	34	CAD for Textile	1#	-	2	3	-	-	25	25~	50
3.50	3(2)	33	Entrepreneurship Development (Common to all)	2\$	-	2	4	50\$	-	25	25~ ¹	100
Total				18	2	14	34	400	150	175	175	900

(#):No theory Exam; (\$) :Online Exam; (*) : Under the theory PA, Out of 30 marks, 10 marks are for micro-project assessment to facilitate integration of COs and the remaining 20 marks is the average of 2 tests to be taken during the semester for the assessment of the cognitive domain LOs required for the attainment of the COs; (~¹): For the courses having ONLY practical, the PA has two parts (i) practical part - 15 marks (60%) (ii) micro- project part - 10 marks (40%).

Note

- During Summer Break after IV semester (i.e. between IV and V Semester), Polytechnics would ensure mandatory placement of students for 6 weeks industrial training. Preferably, the industry where students would be placed should be large or medium scale, however if such industries are not available, then students can also be placed in small or very small industries but it should be relevant to the branch or discipline of engineering. **This training would be evaluated during V semester.**
- The allotment of the group of students and orientation for industrial training shall be done before the end of IV semester.
- Students should prepare report of training, which will be evaluated during V semester.

Programme Code:..... I - Scheme Diploma Programme in Textile Manufacturing												
V – Semester												
Weighted mean score	S.No. & (Rank No.) of Report	Industry Questionnaire S. No.	Course Title	Teaching Scheme/Week			Credits (L+T+P)	Examination Scheme				
				L	T	P		Theory		Practical		Grand Total
								ESE	PA	ESE	PA	
MSBTE guidelines and industry feedback			Industrial Training (during summer break after IV semester)	-	-	6 [^]	6 [^]	-	-	75	75	150
3.5	25(9)	46, 41	Spinning of Other Fibers and Blends	4	-	-	4	70	30*	-	-	100
3.4	19(9)	30, 23	Automatic Weaving	4	-	2	6	70	30*	25	25	150
3.96	1(1)	17	Fabric and Garment Testing	4	-	2	6	70	30*	25	25	150
3.5	9(25)		Non Woven and Technical Textiles	3	-	-	3	70	30*	-	-	100
3.43	8(5)	32	Advanced Fabric Structure Design	2#	-	2	4	-	-	25	25~ ¹	50
-	-	21	Environment and Energy Friendly Textile Technologies	3	-	2	5	70	30*	25	25	150
MSBTE guidelines			Minor Project (Common to all)	-	-	4	4	-	-	50	50	100
Total				20	-	18[^]	38[^]	350	150	225	225	950

(#): No theory Exam; (*): Under the theory PA, Out of 30 marks, 10 marks are for micro-project assessment to facilitate integration of COs and the remaining 20 marks is the average of 2 tests to be taken during the semester for the assessment of the cognitive domain LOs required for the attainment of the COs; (~¹): For the courses having ONLY practical, the PA has two parts (i) practical part - 15 marks (60%) (ii) micro- project part - 10 marks (40%).(^): Though 4 credits are allocated for Industrial Training it is only for awarding marks. As far as teaching load/time table preparation is considered, each faculty would be assigned with one batch of students (equivalent to practical batch size) for guiding the preparation of industrial training report and its evaluation. For this purpose 1 hour (or two hours on working Saturdays) teaching load would be considered.

Note

Evaluation of industrial training and its reports is to be done during this semester. Credits of Industrial Training will not affect the framing of the time table.

Programme Code:..... I - Scheme Diploma Programme in Textile Manufacturing												
VI – Semester												
Weighted mean score	S. No. and (Rank No.) of Report	Industry Questionnaire S. No.	Course Title	Teaching Scheme/Week			Credits (L+T+P)	Examination Scheme				
				L	T	P		Theory		Practical		Grand Total
							ESE	PA	ESE	PA		
3.21	29(14)		Advances in Spinning Technology	3	-	2	5	70	30*	25	25	150
3.71	12(6)	37	Process Control in Spinning	3	-	2	5	70	30*	25	25	150
3.75	10(5)	38	Process Control in Weaving	3	-	2	5	70	30*	25	25	150
3.41	11(6)	30	Shuttleless Weaving	3	-	2	5	70	30*	25	25	150
3.5	3(2)	39, 35	Textile Mill Operations	2#	-	2	4	-	-	50	50~ ²	100
3.34	G2(2)	37	Technical Writing (Common to all)	-	-	2	2	-	-	25	25	50
MSBTE guidelines			Major Project (Common to all)	-	-	6	6	-	-	75	75	150
Total				14	-	18	32	280	120	250	250	900

(#): No theory Exam; (*): Under the theory PA, Out of 30 marks, 10 marks are for micro-project assessment to facilitate integration of COs and the remaining 20 marks is the average of 2 tests to be taken during the semester for the assessment of the cognitive domain LOs required for the attainment of the COs; (~²): For the courses having ONLY practical examination, the PA has two parts – marks for~² (i) practical part - 30 marks (60%) (ii) micro-project part – 20 marks (40%); (~²): For the courses having ONLY practical examination, the PA has two parts – marks for~² (i) practical part - 30 marks (ii) micro-project part – 20.

Note

The **Technical Writing** course is introduced as practical work, in which English faculty members would facilitate the framing of correct language for writing different chapters and presentation (i.e.PPT. and others) of their project work from English point of view. Name of English teacher has to be included as a 'Language Editor' in the project and this activity will be the part of practical shown against Technical Writing course at VI semester. This work shall be carried out for each batch (size same as for practical).

I – Scheme Summary of Teaching Scheme/Week, Credits and Examination Scheme

Textile Manufacturing

Semester	Teaching Scheme/Week			Credits (L+T+P)	Examination Scheme				Grand Total
	L	T	P		Theory		Practical		
					ESE	PA	ESE	PA	
I	15	2	16	33	210	90	200	200	700
II	23	-	12	35	385	165	150	150	850
III	20	-	10	30	350	150	125	125	750
IV	18	2	14	34	400	150	175	175	900
V	20	-	18	38	350	150	225	225	950
VI	14	-	18	32	280	120	250	250	900
Total	110	04	88	202	1975	825	1150	1150	5100

(^): This includes total 6 credits for Industrial Training conducted during Summer Break between IV and V semester.