SYLLABUS

DIPLOMA IN TEXTILE TECHNOLOGY
FULL TIME /
TEXTILE TECHNOLOGY SANDWICH

Course Code: 1060/2060

2015-2016 onwards

M- SCHEME

DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNAD

DIPLOMA COURSES IN ENGINEERING/TECHNOLOGY
(SEMESTER SYSTEM)

Syllabus Revision Committee

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DIPLOMA COURSES IN ENGINEERING/TECHNOLOGY

(SEMESTER SYSTEM)

(Implemented from 2015- 2016)

M – SCHEME

R E G U L A T I O N S*

* *Applicable to the Diploma Courses other than Diploma in Hotel Management & Catering Technology and the Diploma Courses offered through MGR Film Institute, Chennai.*

1. Description of the Course:

a. Full Time (3 years)

The Course for the full Time Diploma in Engineering shall extend over a period of three academic years, consisting of 6 semesters* and the First Year is common to all Engineering Branches.

b. Sandwich (3½ years)

The Course for the Diploma in Engineering (sandwich) shall extend over a period of three and half academic years, consisting of 7 semesters* and the First Year is common to all Engineering Branches. The subjects of three years full time diploma course being regrouped for academic convenience.

During 4th and/or during 7th semester the students undergo industrial training for six months/ one year. Industrial training examination will be conducted after completion of every 6 months of industrial training

c. Part Time (4 years)

The course for the diploma in Engineering shall extend over a period of 4 academic years containing of 8 semesters*, the subjects of 3 year full time diploma courses being regrouped for academic convenience.

* Each Semester will have 15 weeks duration of study with 35 hrs. /Week for Regular Diploma Programme and 18hrs/ week (21 hrs. / Week I year) for Part-Time Diploma Programmes.

The Curriculum for all the 6 Semesters of Diploma courses (Engineering & Special Diploma Courses viz. Textile Technology, Leather Technology, Printing Technology, Chemical Technology etc.) have been revised and revised curriculum is applicable for the candidates admitted from 2015 – 2016 academic year onwards.

2. Condition for Admission:

Condition for admission to the diploma courses shall be required to have passed in

The S.S.L.C Examination of the Board of Secondary Education, TamilNadu.

(Or)

The Anglo Indian High School Examination with eligibility for Higher Secondary Course in TamilNadu.

(Or)

The Matriculation Examination of Tamil Nadu.

(Or)

Any other Examination recognized as equivalent to the above by the Board of Secondary Education, TamilNadu.

Note: In addition, at the time of admission the candidate will have to satisfy certain minimum requirements, which may be prescribed from time to time.

3. Admission to Second year (Lateral Entry):

A pass in HSC (Academic) or (Vocational) courses mentioned in the Higher Secondary Schools in TamilNadu affiliated to the TamilNadu Higher Secondary Board with eligibility for university Courses of study or equivalent examination, & Should have studied the following subjects.

Sl. No	Courses	H.Sc Academic	H.Sc Vocational	
		Subjects Studied	Subjects Studied	
			Related subjects	Vocational subjects
1.	All the Regular and Sandwich Diploma Courses	Maths, Physics & Chemistry	Maths / Physics / Chemistry	Related Vocational Subjects Theory & Practical
2.	Diploma course in Modern Office Practice	English & Accountancy English & Elements of Economics English & Elements of Commerce	English & Accountancy, English & Elements of Economics, English & Management Principles & Techniques, English & Typewriting	Accountancy & Auditing, Banking, Business Management, Co-operative Management, International Trade, Marketing & Salesmanship, Insurance & Material Management, Office Secretaryship.

- For the diploma Courses related with Engineering/Technology, the related / equivalent subjects prescribed along with Practical may also be taken for arriving the eligibility.

- Branch will be allotted according to merit through counseling by the respective Principal as per communal reservation.

- For admission to the Textile Technology, Leather Technology, Printing Technology, Chemical Technology and Modern Office Practice Diploma courses the candidates studied the related subjects will be given first preference.

- *Candidates who have studied Commerce Subjects are not eligible for Engineering Diploma Courses.*

4. Age Limit: No Age limit.

5. Medium of Instruction: English

6. Eligibility for the Award of Diploma:

No candidate shall be eligible for the Diploma unless he/she has undergone the prescribed course of study for a period of not less than 3 academic years in any institution affiliated to the State Board of Technical Education and Training, TamilNadu, when joined in First Year and two years if joined under Lateral Entry scheme in the second year and passed the prescribed examination.

The minimum and maximum period for completion of Diploma Courses are as given below:

Diploma Course	Minimum Period	Maximum Period
Full Time	3 Years	6 Years
Full Time(Lateral Entry)	2 Years	5 Years
Sandwich	3½ Years	6½ Years
Part Time	4 Years	7 Years

7. Subjects of Study and Curriculum outline:

The subjects of study shall be in accordance with the syllabus prescribed from time to time, both in theory and practical. The curriculum outline is given in Annexure **- I**

8. Examinations:

Board Examinations in all subjects of all the semesters under the scheme of examinations will be conducted at the end of each semester.

The Internal assessment marks for all the subjects will be awarded on the basis of continuous internal assessment earned during the semester concerned. For each subject 25 marks are allotted for internal assessment and 75 marks are allotted for Board Examination.

9. Continuous Internal Assessment:

A . For Theory Subjects:

The Internal Assessment marks for a total of 25 marks, which are to be distributed as follows:

i. Subject Attendance **5 Marks**

(Award of marks for subject attendance to each subject theory/practical will as per the range given below)

80%	- 83%		1 Mark
84%	- 87%		2 Marks
88%	- 91%		3 Marks
92%	- 95%		4 Marks
96%	- 100%		5 Marks

ii) Test # **10 Marks**

2 Tests each of 2 hours duration for a total of 50 marks are to be conducted. Out of which the best one will be taken and the marks to be reduced to: 05 marks

The Test – III is to be the Model test covering all the five units and the marks so obtained will be reduced to : 05 marks

Total **10 marks**

TEST	UNITS	WHEN TO CONDUCT	MARKS	DURATION
Test I	Unit – I & II	End of 6th week	50	2 Hrs
Test II	Unit – III & IV	End of 12th week	50	2 Hrs
Test III	**Model Examination** - **Compulsory** Covering all the 5 Units. (Board Examination-question paper-pattern).	End of 15th week	75	3 Hrs

 # - From the Academic year 2015-2016 onwards.

Question Paper Pattern for the Periodical Test :(Test - I & Test- II)

With no choice:

PART A type questions:	4 Questions X 2 mark	… … 8 marks
PART B type questions:	4 Questions X 3 marks	… … 12 marks
PART C type questions:	3 Questions X 10 marks	… … 30 marks

	Total	50 marks
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iii) Assignment **10 Marks**

For each subject Three Assignments are to be given each for 20 marks and the average marks scored should be reduced for 10 marks

All Test Papers and assignment notebooks after getting the signature with date from the students must be kept in the safe custody in the Department for verification and audit. It should be preserved for 2 Semesters and produced to the flying squad and the inspection team at the time of inspection/verification.

B. For Practical Subjects:

The internal assessment mark for a total of 25 marks which are to be distributed as follows:-

a)	Attendance	:	**5 Marks**
	(Award of marks as same as Theory subjects)		
b)	Procedure/ observation and tabulation/ Other Practical related Work	:	**10 Marks**
c)	Record writing	:	**10 Marks**

	TOTAL	:	**25 Marks**

- *All the Experiments/exercises indicated in the syllabus should be completed and the same to be given for final board examinations.*
- The Record for every completed exercise should be submitted in the subsequent Practical classes and marks should be awarded for 20 for each exercise as per the above allocation.
- At the end of the Semester, the average marks of all the exercises should be calculated for 20 marks and the marks awarded for attendance is to be added to arrive at the internal assessment mark for Practical. (20+5=25 marks)

- The students have to submit the duly signed bonafide record note book/file during the Practical Board Examinations.
- *All the marks awarded for assignment, Test and attendance should be entered in the Personal Log Book of the staff, who is handling the subject. This is applicable to both Theory and Practical subjects.*

10. Life and Employability Skill Practical:

The Life and Employability Skill Practical with more emphasis is being introduced in IV Semester for Circuit Branches and in V Semester for other branches of Engineering.
Much Stress is given to increase the employability of the students:

Internal assessment Mark **….. 25 Marks**

11. Project Work:

The students of all the Diploma Programmes **(except Diploma in Modern Office Practice)** have to do a Project Work as part of the Curriculum and in partial fulfillment for the award of Diploma by the State Board of Technical Education and Training, Tamilnadu. In order to encourage students to do worthwhile and innovative projects, every year prizes are awarded for the best three projects i.e. institution wise, region wise and state wise. **The Project work must be reviewed twice in the same semester.**

a) Internal assessment mark for Project Work & Viva Voce:

Project Review I	…	**10 marks**
Project Review II	…	**10 marks**
Attendance	…	**05 marks** (award of marks same as theory subjects pattern)
Total	…	**25 marks**

Proper record to be maintained for the two Project Reviews, and It should be preserved for 2 Semesters and produced to the flying squad and the inspection team at the time of inspection/verification.

b) Allocation of Mark for Project Work & Viva Voce in Board Examination:

Viva Voce	…	30 **marks**
Marks for Report Preparation, Demo	…	35 **marks**
Total		**65 marks**

c) Written Test Mark (from 2 topics for 30 minutes duration): $

i) Environment Management	2 questions X 2 ½ marks	= 5 **marks**
iI) Disaster Management	2 questions X 2 ½ marks	= **5 marks**
		10marks

$ - Selection of Questions should be from Question Bank, by the External Examiner.

No choice need be given to the candidates.

Project Work & Viva Voce in Board Examination	--	**65 Marks**
Written Test Mark (from 2 topics for 30 minutes duration)	--	**10 Marks**
TOTAL	--	**75 Marks**

A neatly prepared PROJECT REPORT as per the format has to be submitted by individual during the Project Work & Viva Voce Board examination.

12. Scheme of Examinations:

The Scheme of examinations for subjects is given in **Annexure - II.**

13. Criteria for Pass:

1. No candidate shall be eligible for the award of Diploma unless he/she has undergone the prescribed course of study successfully in an institution approved by AICTE and affiliated to the State Board of Technical Education & Training, Tamil Nadu and pass all the subjects prescribed in the curriculum.

2. A candidate shall be declared to have passed the examination in a subject if he/she secures not less than *40% in theory subjects* and *50% in practical subject* out of the total prescribed maximum marks including both the internal assessment and the Board Examination marks put together, subject to the condition that he/she secures at least a minimum of *30 marks out of 75 marks in the Board's Theory examinations and a minimum of 35 marks out of 75 marks in the Board Practical Examinations.*

14. Classification of successful candidates:

Classification of candidates who will pass out the final examinations from April 2018 onwards (Joined in first year in 2015-2016) will be done as specified below.

First Class with Superlative Distinction:

A candidate will be declared to have passed in **First Class with Superlative Distinction** if he/she secures not less than 75% of the marks in all the subjects and passes all the semesters in the first appearance itself and passes all subjects within the stipulated period of study 3/ 3½/ 4 years (Full Time/Sandwich/Part Time) without any break in study.

First Class with Distinction:

A candidate will be declared to have passed in **First Class with Distinction** if he/she secures not less than 75% of the aggregate of marks in all the semesters put together and passes all the semesters except the I and II semesters in the first appearance itself and passes all the subjects within the stipulated period of study 3/ 3½/ 4 years (Full Time/Sandwich/Part Time) without any break in study.

First Class:

A candidate will be declared to have passed in **First Class** if he/she secures not less than 60% of the aggregate marks in all semesters put together and passes all the subjects within the stipulated period of study 3/ 3½ / 4 years (Full Time/Sandwich/Part Time) without any break in study.

Second Class:

All other successful candidates will be declared to have passed in **Second Class.**

The above mentioned classifications are also applicable for the Sandwich / Part-Time students who pass out Final Examination from October 2018 /April 2019 onwards (both joined in First Year in 2015-2016)

15. Duration of a period in the Class Time Table:

The duration of each period of instruction is 1 hour and the total period of instruction hours excluding interval and Lunch break in a day should be uniformly maintained as 7 hours corresponding to 7 periods of instruction (Theory & Practical).

16. Seminar:

For seminar the total seminar 15 hours(15 weeks x 1hour) should be distributed equally to total theory subject per semester(i.e 15 hours divided by 3/4 subject). A topic from subject or current scenario is given to students. During the seminar hour students have to present the paper and submit seminar material to the respective staff member, who is handling the subject. It should be preserved for 2 Semesters and produced to the flying squad and the inspection team at the time of inspection/verification.

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DIPLOMA IN TEXTILE TECHNOLOGY
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

Significance of the Course:

The Textile industries is one of the most ancient and traditional industry in India as well as in the world. It triggered the Industrial revolution worldwide.

The technology of Spinning, Weaving, Knitting, Wet Processing and Garment Manufacturing has been rapidly progressing in the developing countries of the world. After the invention of new generation man made fibres such as nylon, polyester, acrylic, polypropylene, glass, carbon, metal etc.., the textile industry is migrated in to other engineering streams in order to develop a product which can serve the specific functional needs. It has created new avenue for the textile technocrats in the name of Technical Textile.

But the Indian Textile industry is still concentrated mainly in the manufacture of spun yarns and woven fabrics from cotton and other synthetic fibres and their blends. It is the second largest contributor for the GDP in India, next only to agriculture, having huge employment potential for semi skilled, skilled, and technical man power. Therefore the Central and State Governments of India attach great importance to the development of this industry.

Diploma in Textile Technology / Textile Technology (Sandwich) is a programme which mainly deals with the study of the various properties of cotton and other common man made fibres (like rayons, nylon, polyester etc.), the mechanical processing of these fibres namely spinning, weaving and knitting and the chemical processing namely preparation, dyeing, printing and finishing.

The programme also deals with the study of the functions and working of various mechanisms available in the spinning, doubling, winding, warping, sizing, weaving and knitting machines commonly running in Indian Textile Mills. It also aims at imparting knowledge in the setting and maintenance of these mechanisms, for achieving efficient production of quality products such as yarns and fabrics. Due coverage is also given to the study of modern developments in spinning, weaving and garment manufacturing and emerging trends and technologies in the field of Non-woven and Technical Textiles.

The programme also covers courses aimed at inspiring and developing the entrepreneurial spirit in the young minds by giving them the necessary inputs.

Now, in the present syllabus emphasis is given to Fibre Science and Technology, Yarn Manufacture, Fabric Manufacture, Textile Wet Processing, Garment Technology, Textile Testing, Computer application, Communication life skills, Textile CAD, Maintenance of Textile Machinery and Process Control in Spinning. The curriculum also gives due emphasis on industrial exposure and relevance to industrial practices and needs.

The course also deals to a limited extent with the study of the various properties of commonly available natural fibres such as silk and wool, production process of important man made fibres and the chemical processing of these fibres in yarn or fabric form.

Course Objectives:

The Diploma in Textile Technology / Textile Technology (Sandwich) courses aim at providing skilled and technical man power needed for the sustainable growth of the Textile industry in our country, by giving the students the necessary education and training in this trade.

i) The subjects are enriched and updated with the able guidance of the expert members from Industry in the area of the specialization
ii) Topics of industrial importance and relevance are included in the syllabus
iii) Practical content of the programme is increased to the maximum extent possible, bringing it to 14 theory courses, 13 practical courses and a project work in the programme.
iv) In order to improve the computer proficiency of the students, Computer Application Practical is introduced in the 3rd semester
v) In order to improve the communication skill of the final year students to facilitate them to attend interviews, Communication and Life Skill Lab is introduced in the 5th semester.

The students undergoing these courses may not only get employed as technical staff, fashion designers and middle level management staff in the various textile manufacturing units, (Spinning mills, Weaving mills, Textile Wet processing and Garment units) but also become successful entrepreneurs, setting up their own spinning, weaving, knitting or garment manufacturing units and contribute to the growth and economy of our nation.

ANNEXURE – I

DIPLOMA IN TEXTILE TECHNOLOGY
Course code: 1060/2060
M Scheme
CURRICULUM OUTLINE

THIRD SEMESTER

Subject Code	SUBJECT	HOURS PER WEEK			
		Theory Hours	Tutorial / Drawing	Practical hours	Total Hours
36031	Fibre Science and Technology	5	-	-	5
36032	Yarn Manufacture - I	5	-	-	5
36033	Fabric Manufacture - I	5	-	-	5
36034	Fibre Identification - Practical	-	-	5	5
36035	Yarn Manufacture - I Practical	-	-	5	5
36036	Fabric Manufacture - I Practical	-	-	5	5
30001	Computer Application Practical**	-	-	4	4
	Seminar	1	-	-	1
TOTAL		16	-	19	35

** Common Paper with All Branches

FOURTH SEMESTER

Subject Code	SUBJECT	HOURS PER WEEK			
		Theory Hours	Tutorial / Drawing	Practical hours	Total Hours
36041	Basic Engineering	5	-	-	5
36042	Yarn Manufacture – II	5	-	-	5
36043	Fabric Manufacture – II	5	-	-	5
36044	Elementary Textile Design	5	-	-	5
36045	Yarn Manufacture – II Practical	-	-	5	5
36046	Fabric Manufacture – II Practical	-	-	5	5
36047	Elementary Textile Design Practical	-	-	4	4
	Seminar	1	-	-	1
TOTAL		21	-	14	35

DIPLOMA IN TEXTILE TECHNOLOGY
Course code: 1060/2060
M Scheme
CURRICULUM OUTLINE

FIFTH SEMESTER

Subject Code	SUBJECT	HOURS PER WEEK			
		Theory Hours	Tutorial / Drawing	Practical hours	Total Hours
36051	Textile Testing	5	-	-	5
36052	Textile Wet Processing	5	-	-	5
36053	Advanced Textile Design	5	-	-	5
	Elective I				
36071	Advanced Textile Manufacture	5	-	-	5
36072	Technical Textiles				
36055	Textile Testing Practical	-	-	5	5
36056	Textile Wet Processing Practical	-	-	5	5
30002	Life and Employability Skill Practical**	-	-	4	4
	Seminar	1	-	-	1
TOTAL		21	-	14	35

** Common Paper with All Branches

SIXTH SEMESTER

Subject Code	SUBJECT	HOURS PER WEEK			
		Theory Hours	Tutorial / Drawing	Practical hours	Total Hours
36061	Textile Management	5	-	-	5
36062	Garment Manufacture	5	-	-	5
	Elective II				
36081	Maintenance of Textile Machinery	5	-	-	5
36082	Process control in Spinning				
36064	Garment Manufacture practical	-	-	5	5
36065	Textile CAD Practical	-	-	5	5
36066	Garment CAD Practical	-	-	5	5
36067	Project Work	-	-	4	4
	Seminar	1	-	-	1
TOTAL		16	-	19	35

ANNEXURE – II

SCHEME OF THE EXAMINATION

THIRD SEMESTER

Subject Code	SUBJECT	Examination Marks			Minimum for pass	Duration of Exam Hours
		Internal assess-ment Marks	Board Exam. Marks	Total Mark		
36031	Fibre Science and Technology	25	75	100	40	3
36032	Yarn Manufacture - I	25	75	100	40	3
36033	Fabric Manufacture - I	25	75	100	40	3
36034	Fibre Identification - Practical	25	75	100	50	3
36035	Yarn Manufacture - I Practical	25	75	100	50	3
36036	Fabric Manufacture - I Practical	25	75	100	50	3
30001	Computer Application Practical**	25	75	100	50	3
		175	525	700		

** Common Paper with All Branches

FOURTH SEMESTER

Subject Code	SUBJECT	Examination Marks			Minimum for pass	Duration of Exam Hours
		Internal assess-ment Marks	Board Exam Marks	Total Mark		
36041	Basic Engineering	25	75	100	40	3
36042	Yarn Manufacture – II	25	75	100	40	3
36043	Fabric Manufacture – II	25	75	100	40	3
36044	Elementary Textile Design	25	75	100	40	3
36045	Yarn Manufacture – II Practical	25	75	100	50	3
36046	Fabric Manufacture – II Practical	25	75	100	50	3
36047	Elementary Textile Design Practical	25	75	100	50	3
TOTAL		175	525	700		

SCHEME OF THE EXAMINATION

FIFTH SEMESTER

Subject Code	SUBJECT	Examination Marks			Minimum for pass	Duration of Exam Hours
		Internal assess-ment Marks	Board Exam. Marks	Total Mark		
36051	Textile Testing	25	75	100	40	3
36052	Textile Wet Processing	25	75	100	40	3
36053	Advanced Textile Design	25	75	100	40	3
	Elective I					
36071	Advanced Textile Manufacture	25	75	100	40	3
36072	Technical Textiles					
36055	Textile Testing practical	25	75	100	50	3
36056	Textile Wet Processing practical	25	75	100	50	3
30002	Life and Employability Skill Practical**	25	75	100	50	3
		175	525	700		

** Common Paper with All Branches

SIXTH SEMESTER

Subject Code	SUBJECT	Examination Marks			Minimum for pass	Duration of Exam Hours
		Internal assess-ment Marks	Board Exam Marks	Total Mark		
36061	Textile Management	25	75	100	40	3
36062	Garment Manufacture	25	75	100	40	3
	Elective II					
36081	Maintenance of Textile Machinery	25	75	100	40	3
36082	Process control in Spinning					
36064	Garment Manufacture practical	25	75	100	50	3
36065	Textile CAD Practical	25	75	100	50	3
36066	Garment CAD Practical	25	75	100	50	3
36067	Project Work	25	75	100	50	3
TOTAL		175	525	700		

SEVENTH SEMESTER

Subject Code	SUBJECT	Examination Marks			Minimum for pass	Duration of Exam Hours
		Internal assess-ment Marks	Board Exam Marks	Total Mark		
36092	**INDUSTRIAL TRAINING & VIVA VOCE**	25	75	100	50	3

ALTERNATIVE SUBJECTS FOR I AND II SEMESTER SUBJECTS

‘L’ SCHEME TO ‘M ’ SCHEME FROM APRIL, 2015-2016

I and II Semesters

ALTERNATIVE SUBJECTS FOR III AND IV SEMESTERS SUBJECTS			
SUBJECTS IN L – SCHEME		ALTERNATIVE SUBJECTS IN THE M – SCHEME	
III SEMESTER - WITH EFFECT FROM OCT ‘16			
26031	Fibre Science and Technology	36031	Fibre Science and Technology
26032	Yarn Manufacture – I	36032	Yarn Manufacture – I
26033	Fabric Manufacture – I	36033	Fabric Manufacture – I
26034	Fibre Identification I Practical	36034	Fibre Identification Practical
26035	Yarn Manufacture – I Practical	36035	Yarn Manufacture – I Practical
26036	Fabric Manufacture – I Practical	36036	Fabric Manufacture – I Practical
20001	Computer Application Practical	30001	Computer Application Practical
IV SEMESTER – W.E.F. APR ‘17			
26041	Basic Engineering	36041	Basic Engineering
26042	Yarn Manufacture – II	36042	Yarn Manufacture – II
26043	Fabric Manufacture – II	36043	Fabric Manufacture – II
26044	Elementary Textile Design	36044	Elementary Textile Design
26045	Yarn Manufacture – II Practical	36045	Yarn Manufacture – II Practical
26046	Fabric Manufacture – II Practical	36046	Fabric Manufacture – II Practical

26047	Elementary Textile Design Practical	36047	Elementary Textile Design Practical
ALTERNATIVE SUBJECTS FOR V and VI SEMESTERS SUBJECTS			
SUBJECTS IN L – SCHEME		**ALTERNATIVE SUBJECTS IN THE M – SCHEME**	
V SEMESTER - W.E.F. OCT '17			
26051	Textile Testing	36051	Textile Testing
26052	Textile Wet Processing	36052	Textile Wet Processing
26053	Advanced Textile Design	36053	ADVANCED TEXTILE DESIGN
26071	Advanced Textile Manufacture	36071	Advanced Textile Manufacture
26072	Technical Textiles	36072	Technical Textiles
26055	Textile Testing practical	36055	Textile Testing practical
26056	Textile Wet Processing practical	36056	Textile Wet Processing practical
20002	Communication and Life Skill Practical	30002	Life and Employability Skill Practical
VI SEMESTER – W.E.F. APR '18			
26061	Textile Management	36061	Textile Management
26062	Garment Manufacture	36062	Garment Manufacture
26081	Maintenance of Textile Machineries	36081	Maintenance of Textile Machineries
26082	Process control in Spinning	36082	Process control in Spinning
26064	Garment Manufacture Practical	36064	Garment Manufacture Practical
26065	Textile CAD Practical	36065	Textile CAD Practical
26066	Garment CAD Practical	36066	Garment CAD Practical
26067	Project work	36067	Project work
	VII SEMESTER		
26092	Industrial Training & Viva Voce	36092	Industrial Training & Viva Voce

Question paper pattern

Common for all theory subjects

PART A ***- (1 to 8) 5 Questions are to be answered out of 8 questions for 2 marks each.*****(Question No. 8 will be the compulsory question and *can be asked from any one of the units)(From each unit maximum of two 2 marks questions alone can be asked)***

PART B ***- (9 to 16)5 Questions are to be answered out of 8 questions for 3 marks each.*** **(Question No. 16 will be the compulsory question and *can be asked from any one of the units) (From each unit maximum of two 3 marks questions alone can be asked)***

PART C ***- (17 to 21) Five Questions will be in the Either OR Pattern. Students have to answer these five questions. Each question carries 10 marks. (Based on the discretion of the question setter, he/she can ask two five mark questions (with sub division A & sub division B) instead of one ten marks question if required)***

III SEMESTER

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

II YEAR

M- SCHEME

III SEMESTER

2015 – 2016 onwards

FIBRE SCIENCE AND TECHNOLOGY

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36031
Semester	:	III Semester
Subject Title	:	FIBRE SCIENCE AND TECHNOLOGY

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
FIBRE SCIENCE AND TECNOLOGY	5 Hrs	75Hrs	25	75	100	3 Hrs

Topics and allocation

Sl. No	Topic	Time (hrs.)
1	INTRODUCTION	14
2	VEGETABLE FIBRES	14
3	ANIMAL FIBRES	14
4	REGENERATED FIBRES	13
5	SYNTHETIC FIBRES	13
6	TEST & REVISION	07
Total		75

Rationale:

Fibres are the basic raw materials for the manufacture of yarns and fabrics. The ultimate property of a yarn or fabric depends on the property of the fibre in it. Therefore, it is important to study the fibre properties.

Different fibres exhibit different physical and chemical properties. This is due to a number of factors like the material of the fibre, its molecular structure, length and the amount of draft applied during spinning process. Fabrics are made from different types of fibres and their blends are put into specific uses such as summer wear, winter wear, industrial wear etc., depending on their particular properties.

Therefore it is very important for a Textile student to study the Science of Fibres and the manufacture of man made fibres.

Objectives

- To know about the various classifications of textile fibres, their origin, chemical nature, and properties etc.
- To know about the fibre chemical composition, reaction, methods and uses.
- To know about the Indian & hybrid cotton varieties and their uses.
- To know about the Flax fibre, Linen fibre, Pineapple fibre, Banana Fibre, Jute fibre, and their uses.
- To know about Wool fibre.
- To know about silk fibres.
- To study about different types of spinning methods – manufacture of Viscose rayon.
- To know about Tencel, Layacell, Modol, Polynosic rayon and HT rayon.
- To know about the manufacture of Nylon 6, Nylon 66, polyester, Acrylic fibres and their properties & uses.
- To know uses of Glass fibre, bamboo, casein, carbon, Nomex and Kevlar fibres.

36031 FIBRE SCIENCE AND TECNOLOGY

DETAILED SYLLABUS

Contents: Theory

Unit	Name of the Topic	Hours
1	**INTRODUCTION:** Definition of Textile Fibre. Classification of Textile Fibres based on origin and chemical nature - Properties required for an ideal textile fibre - Identification of Textile Fibres (cotton, silk, wool, Viscose, nylon, polyester acrylic) - Microscopic test, burning test, Solubility test - Types of polymerization - Addition and condensation polymerization. Definition of monomer, polymer, repeat unit, polymerization, Degree of polymerization, Staple fibre, filament yarn, mono filament, multifilament, spun yarn & ply yarn.	14
2	**VEGETABLE FIBRES** **Cotton:** Cotton producing countries and states in India - Classification of commercial cottons, Indian hybrid cottons with their characteristic - Physical and chemical structures of cotton fibre - Physical and chemical properties of cotton - Uses. **Linen:** Linen producing countries - Physical and chemical properties - Uses. **Jute:** Jute producing countries and states in India - Physical and chemical properties – Uses. End uses of Bamboo, soya, sisal, Banana and Pineapple fibres.	14
3	**ANIMAL FIBRES** **Wool:** Wool producing countries - Classification of wool with respect to fleece and breeds - Physical and chemical structure - Physical and chemical properties - Comparison of woollen and worsted yarns - Uses. **Silk:** Silk producing countries - Types of silk (Mulbery, Eri, Muga) - Reeling, throwing and doubling - Degumming of silk - Weighting of silk - Physical and chemical properties – Uses.	14

4	**REGENERATED FIBRES** : Types of spinning of man made fibres - Wet, dry and melt spinning - Drawing and its importance. **Viscose Rayon:** Viscose Rayon manufacturers in India - Raw material – manufacturing Process with flow chart - Properties - uses. **Properties and Uses -** High Wet Modulus rayon, HT Rayon, Tencel Rayon, Lyocell, Modal, polynosic	13
5	**SYNTHETIC FIBRES:** Nylon and Polyester manufacturers in India. **Nylon – 6,6:** Raw material – manufacturing Process with flow chart - properties - uses. **Nylon – 6:** Raw material – manufacturing Process with flow chart - properties - uses **Polyester:** Raw material – manufacturing Process using PTA route with flow chart - properties - uses. **Acrylic Fibre:** Raw material - manufacturing Process with flow chart - properties - uses. Applications of the following fibres: Glass, Asbestos, Casein, Carbon, Nomex, Kevlar & Polyurethane.	13

TEXT BOOKS:

S.No	TITLE	AUTHOR	PUBLISHERS	YEAR OF PUBLICATION
1	Textile fibres	V.A. Shenai	"Technology of Textile Processing". Sevak publications, Bombay	1997
2	Textile fibres Vol I, Vol II	J.Gordon cook	Woodhead Publishing Ltd. Cambridge England	2001
3	Manmade fibres	P.W. Moncrieff	Newnes – Butterworths, London	1975

REFERENCE BOOKS:

S.No	TITLE	AUTHOR	PUBLISHERS	YEAR OF PUBLICATION
1	Textile Science	E.P.C. Gohle and L.D. Vilensty	CBS Publishers and Distributors Delhi, India	1987
2	Fibre Science and Technology	S.P. Mishra	New age International (p) Ltd Daryaganj, New Delhi-110002	2005
3	Dyeing and chemical Technology of Textile Fibres	ER Trotman	British high commission Madras – 2	1970

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

II YEAR

M- SCHEME

III SEMESTER

2015 - 2016 onwards

YARN MANUFACTURE - I

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36032
Semester	:	III Semester
Subject Title	:	YARN MANUFACTURE - I

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
YARN MANUFACTURE - I	5 Hrs	75Hrs	25	75	100	3 Hrs

Topics and allocation

Sl. No	Topic	Time (hrs.)
1	GINNING AND BLOWROOM	14
2	MODERN DEVELOPMENTS IN BLOW ROOM	14
3	CARDING	14
4	MODERN DEVELOPMENTS IN CARDING	13
5	DRAW FRAME	13
6	TEST & REVISION	07
Total		75

RATIONALE:

The basic idea about Ginning, blending, mixing, blow room machineries and the working of the various components of the blow room are essential for the understanding of the preparation to spinning process. The students will be able to understand the objects, principles and Modern developments in carding and drawing, principles of doubling and drafting in draw frame and other functional components. This will enable the students to perform the necessary setting changes required for processing different counts and do calculations related with the production and efficiency of the machines, draft applied etc.

Objectives

- To acquire knowledge about the various blow room machineries.
- To understand the working of various opening and cleaning machines.
- To understand the working of scutcher unit.
- To calculate the speed, production and efficiency of blow room machinery.
- To acquire knowledge about carding m/c.
- To know the various settings in a card.
- To understand the modern developments in a card.
- To calculate the speed, draft, production and efficiency in cards.
- To know the different drafting systems in draw frame.
- To calculate the speed, draft, production and efficiency in draw frames.

36032 YARN MANUFACTURE I

DETAILED SYLLABUS

Content : Theory

Unit	Name of the Topic	Hours
1	**GINNING AND BLOWROOM:** **Ginning:** Objects - types of gins and their suitability. Blending - Objects and their effects on yarn quality - Fibre properties to be considered for blending - Homogeneous Mixing – Definition and importance - Typical mixing for coarse, medium and fine counts - Comparison between mixing and blending - Mixing and blending equipments - Working of multi mixer, Aero mix and unifloc. **Blow room**: Objectives of blow room process - Principles of opening and cleaning - Description and working of Hopper bale breaker, Flexi cleaner, step cleaner, Aero dynamic cleaner, Mono cylinder and ERM cleaner - Study of scutcher - Krischner beater - Piano feed regulating motion, Automatic Lap forming and doffing device.	14
2	**MODERN DEVELOPMENTS IN BLOW ROOM:** Salient features of modern blow room - Study of pneumatic conveyers, condensers, distributors, filters, Automatic Waste Evacuation Systems (AWES) and Automatic waste baling system, metal detectors, Fire detectors and diverters – Study of Contamination and machine used for contamination clearers - Blow room sequences employed using latest openers and beaters suitable for fine, medium and coarse cotton (flow chart only) - Defects in blow room laps, causes and remedial measures - Popular manufacturers of modern Blow room machines - Calculation pertaining to production of scutcher and cleaning efficiency of beaters.	14
3	**CARDING:** Objects and principles of carding - carding and stripping actions - passage of material through HP card. Study of different parts of a carding machine and their functions. Card Settings recommended for long staple cotton and manmade fibers. Brief study about grinding of card cylinder and doffer. Defects in card sliver, their causes and remedies. Study of chute feed system, advantages and disadvantages. Calculation pertaining to Draft and production.	14

4	**MODERN DEVELOPMENTS IN CARDING:** Modern development in different regions – licker-in, flats, cylinder. Brief study of metallic wire specifications for Cotton process in Licker-in, Cylinder and Doffer (PPI, Angel of wire point, Height and width). Study of Web doffing device – India roll. Brief study of auto leveller - Open and closed loop systems - Dust extraction system in card - Automatic Waste Evacuation System (AWES) – Salient features of modern carding machine. Popular manufacturers of modern Carding machines.	13
5	**DRAW FRAME:** Objects of drawing - principles of doubling and drafting at draw frame - Study of fibre arrangements in the carded and drawframe slivers – study of Breaker and Finisher Drawing - Functions of different parts of draw frame - Passage of material through modern draw frame - Draft and its distribution - Roller weighting systems - spring and pneumatic weighting systems. Roller settings and its importance – Working of Polar drafting and RSB drafting systems - Stop motions and their advantages - Salient features of modern draw frames - Brief study of auto levellers in modern draw frames – Brief study of sliver quality monitoring device, stop motions & can changing systems - Sliver defects in draw frame their causes and remedies - Popular manufacturers of modern Draw Frames. Calculation pertaining to Draft and production.	13

TEXT BOOK:

S.No.	Title of the book	Author	Publisher	Year
1	Opening and cleaning	W.A.Hunter	The Textile Institute Manchester, U.K.	1992

REFERENCE BOOKS:

S.No.	Title of the book	Author	Publisher	Year
1	Cotton spinning	W.S.Taggart	Universal Book Corporation 546, JER Mohal Dhobi Talav, Bombay-400072	1996
2	Short Staple Spinning Series Volume I, II & III	W.Klein	The Textile Institute Manchester, U.K.	1987

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

II YEAR

M- SCHEME

III SEMESTER

2015 – 2016 onwards

FABRIC MANUFACTURE I

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36033
Semester	:	III Semester
Subject Title	:	FABRIC MANUFACTURE – I

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
FABRIC MANUFACTURE I	5 Hrs	75Hrs	25	75	100	3 Hrs

Topics and allocation

Sl. No	Topic	Time (hrs.)
1	**Warp Winding and Weft Winding**	14
2	**Warping and Sizing**	14
3	**Drawing-in, Denting and Calculations**	14
4	**Loom - Primary Motions**	13
5	**loom – secondary and auxiliary motions**	13
6	**TEST & REVISION**	07
Total		75

RATIONALE:

A basic knowledge about the different processes like cone winding, pirn winding, warping, sectional warping, sizing, drawing-in and denting are essential for the students to understand the sequence of operations in the weaving preparatory processes. Hence they must be taught to the students to enhance their knowledge and skill in the setting and operation of the preparatory machines and also to perform necessary weaving preparatory calculations.

OBJECTIVES:

- To know the objective of winding.
- To know about different types of Tensioning devices and their uses.
- To understand about yarn clearers and package faults.
- To know about High speed warping machine, salient features –Faults on.
- To understand about, Sizing ingredients, their functions and importance.
- To understand about the Sizing process and various controls.
- To know about plain power loom – primary mechanisms – timings, settings
- To know about plain power loom – secondary mechanisms – timings, settings
- To know about Drawing-in Denting, yarn numbering systems and understand various calculations of winding , warping and sizing.

36033 FABRIC MANUFACTURE – I

DETAILED SYLLABUS

UNIT	NAME OF THE TOPIC	HOURS
1	**WARP AND WEFT WINDING** **Warp Winding**: Brief study of Sequence of Processes in Weaving Preparatory – Objects of Warp Winding– Different types of Yarn Packages– Definition of terms: Angle of wind, Angle of cone and Number of Wind, Traverse, Traverse Length – Yarn Tensioners – Study of different types of Tensioners with simple sketches –Merits and Demerits – Yarn Clearers–Study of different types of Clearers with simple sketches–Mechanical and Electronic Clearers– Clearing efficiency–Merits and Demerits–Study of different types of Knots–Knot factor– Splicing – Types of Splicing – Salient features of spliced yarn – Passage of material through Fully Automatic Cone Winding Machine and its salient features– Package Faults – Causes and Remedies. **Weft Winding**: Objects of Weft Winding – Advantages of Rewound Weft Over Direct Weft – Passage of material through High Speed Automatic Pirn Winder and its salient features – Bunch and its necessity.	14
2	**WARPING AND SIZING** **Warping**: Objects - Passage of material through High Speed Beam Warping Machine – Types of Creels – Electrical Warp Stop Motion – Salient features of Modern Warping Machines, Beam Faults – Causes and Remedies. **Sectional Warping:** Need for Sectional Warping–Passage of material through a Computerised Sectional Warping machine. **Sizing:** Objects – Different types of Sizing ingredients and their functions – Size Pick-up – Factors affecting Size Pick-up – Study of the modern Size box with a simple sketch– Moisture Control – Stretch Control – Temperature Control – Size Level Control – Yarn Migration and its effects– Environmental and Safety Aspects in Sizing – Passage of material through Multi Cylinder Sizing Machine - Beam defects – Causes and remedies.	14
3	**DRAWING-IN, DENTING AND CALCULATIONS** **Drawing-in and Denting:** Object of Drawing-in and	14

	Denting, Object of Leasing–Methods of Leasing – Droppers – Types and their Purpose –Objects of Warp Knotting – Manual and Mechanical Warp Knotting methods – Loom Gaiting. **Yarn Numbering Systems** : Different Yarn Numbering Systems– Direct Systems (Tex, Denier) –Indirect Systems (English Cotton, Metric Cotton and French Cotton systems) – Calculation of Length, Weight and Count of Yarns based on the above Systems– Conversion of Count from one system to another (Limited to the systems mentioned above)– Plied Yarn Count Calculations. **Preparatory Calculations:** Production Calculations of Warp Winding, Weft Winding, Warping and Sizing machines.	
4	**LOOM – PRIMARY MOTIONS** **Introduction to Weaving**: Passage of Material through Power loom – Definition of Right hand, Left hand looms and Shuttles. **Shedding**: Objects of Shedding – Working of Negative tappet shedding mechanism with a simple sketch – Brief Study of Over and Under Heald reversing motions with simple sketches. Positive and Negative Shedding – Merits and Demerits – Definition of Early Shedding and Late Shedding. Types of Sheds – Merits and Demerits – Brief study of E-Shedding mechanism with a simple sketch. **Picking**: Objects of Picking – Types of Picking – Working of Cone Over Picking and Side lever Under Picking Mechanisms with simple sketches– Advantages and Disadvantages of Over and Under Picking Mechanisms– Early and Late Picking – Shuttle Checking Devices. **Beat-up**: Object of Beat-up – Study of the parts of the Sley-Crank Arm beat up mechanism with a simple sketch– Eccentricity of Sley's Motion – Factors affecting Eccentricity of Sley.	13
5	**LOOM - SECONDARY AND AUXILIARY MOTIONS** **Take up motions:** Objects - Types - Working of Seven Wheel Take up Motion with a line sketch —Working of Positive Continuous Take up Motion with a simple sketch-Anti-Crack Motion. **Let-off Motion:** Objects - Types - Working of Negative let-off Motion - Control of Warp Tension - Oscillating back rest	13

	and its functions. **Weft fork Motion:** Objects - Types - Brief study of Side & Centre Weft Fork Motion. **Warp Protecting Mechanism:** Objects – Types – Brief study of Loose Reed mechanism and Fast Reed mechanisms with simple sketch. **Other Mechanisms:** Functions of Brake Motion, Fly Wheel, Lease Rods, Healds, Reeds, and Temples - Types and their uses.	

TEXT BOOKS:

S.No	Title	Author	Publishers	Year of Publishing
1	Principles of Weaving	Marks & Robinson	The Textile Institute, Manchester	1976
2	Woven Fabric Production - I	NCUTE	NCUTE, New Delhi	2002

REFERENCE BOOKS:

S.No	Title	Author	Publishers	Year of Publishing
1	Hand book of weaving	Dr Sabit Adhenur	Technomic Publishing Compnay – INC, Lancester, basel , UK	2001
2	Modern Preparation and Weaving Machinery	A.Ormerod	Butterworths , London	1983
3	Weaving machines, mechanisms and management	Talukdar , Sriramulu, Ajgonkar	Mahajan publishers (P) ltd Mumbai	1988

4	Weaving Calculations	R.Sengupta	D.B.Taraporevala sons & co Ltd., Mumbai	1996
5	Textile sizing	Bhuvanesh C.Goswami & Rajesh D Anand jiwala	Marshel dekker, INC New York	2004

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DIPLOMA IN TEXTILE TECHNOLOGY /
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II YEAR

M- SCHEME

III SEMESTER

2015 – 2016 onwards

FIBRE IDENTIFICATION PRACTICAL

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36034
Semester	:	III Semester
Subject Title	:	FIBRE IDENTIFICATION PRATICAL

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
FIBRE IDENTIFICATION PRATICAL	5 Hrs	75 Hrs	25	75	100	3 Hrs

Rationale:

To enhance the practical knowledge to identify the natural and man made fibres by microscopical appearance, solubility and burning tests, also to acquire knowledge to identify the blend proportion in yarn and fabric.

OBJECTIVES:

1. To identify the natural fibre with longitudinal views
2. To identify the Man made fibre by examining the longitudinal views
3. To determine the mean twist of continuous multifilament yarn.
4. To identify the natural fibre using solvent.
5. To identify the man made using solvent.
6. To identify the natural fibres by the burning tests.
7. To identify the man made fibre by the burning tests
8. To determine the blend proportions in a spun yarns using solvents. (P/C, P/V).

9. To determine the blend proportions of the given fabric (P/C, P/V).
10. To determine the mean linear density of monofilament yarns.
11. To determine the mean linear density of multifilament yarns.
12. To determine the mean linear density of texturised yarns.

GUIDELINES:

- All the 12 experiments given in the list of experiments should be completed and given for the end semester practical examination.
- In order to develop best skills in handling instruments / equipment and taking readings in the practical classes, every two students should be provided with a separate equipment set up for doing experiments in the laboratory.
- The external examiners are requested to ensure that a single experimental question should not be given to more than four students while admitting a batch of 30 students during Board Examinations.

QUESTION PAPER PATTERN & ALLOCATION OF MARKS

Single Experiment is to be given per student

Experiment	50 marks
Write up / diagram / calculations	20 marks
Viva	05 marks
Total	75 Marks

LIST OF EXPERIMENTS

1. Examination of the longitudinal views of the given natural fibres (cotton, silk, wool and jute) by means of a microscope.
2. Examination of the longitudinal views of the given synthetic fibres (viscose rayon, nylon, polyester and acrylic) by means of a microscope.
3. Determination of the mean twist in the given continuous multifilament yarn and its CV %
4. Examination of the solubility of the given natural fibres (cotton, silk, wool and jute) with suitable solvents.
5. Examination of the solubility of the given synthetic fibres (viscose rayon, nylon, polyester and acrylic) with suitable solvents.
6. Identification of the given natural fibres (cotton, silk, wool and jute) by burning tests
7. Identification of the given synthetic fibres (Viscose **rayon, Polyester, Nylon and Acrylic)** by burning tests.
8. Determination of the blend proportions of the given spun yarns (P/C, P/V).
9. Determination of the blend proportions of the given fabric (P/C, P/V).
10. Determination of the linear density of the given monofilament synthetic yarns.
11. Determination of the linear density of the given multifilament synthetic yarns.
12. Determination of the linear density of the given texturised yarns.

List of equipment required for a batch of 30 students.

1. Dye bath - 2
2. Glass plate – 4
3. Microscope – 1
4. Single yarn twist tester – 1
5. Bunsen burner – 2
6. Wrap reel – 1
7. Single Yarn tensile strength tester – 1
8. Conical flask – 10
9. Test tube – 10
10. Different types of fibres and blended fabrics.

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DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

II YEAR

M- SCHEME

III SEMESTER

2015 – 2016 onwards

YARN MANUFACTURE - I PRACTICAL

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36035
Semester	:	III Semester
Subject Title	:	YARN MANUFACTURE – I PRACTICAL

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
YARN MANUFACTURE – I PRACTICAL	5Hrs	75Hrs	25	75	100	3 Hrs

RATIONALE:

In Diploma level engineering education, skill development plays a vital role. The skill development can be achieved by on hand experience in various instruments, apparatus and equipment. This is accomplished by doing engineering related experiments in practical classes in various laboratories.

Objectives

BLOW ROOM

- To practice the settings of the blow room machinery such as, Hopper bale breaker, Axi-flow Cleaner, Mono cylinder, E.R.M. cleaner and Scutcher.
- To draw the gearing plan and calculate the speed of various parts of the blow room machinery such as, Hopper bale breaker, E.R.M. cleaner and Scutcher.
- To calculate the production and efficiency of the blow room line.

CARDING

- To practice the settings of carding machine for processing long, medium and short staple cottons..
- To draw the gearing plan and calculate the speed of various parts of the carding machine.
- To calculate the Drafts between the various carding elements of the carding machine and to calculate the Draft constant of the machine.
- To calculate the production and efficiency of the carding machine.

DRAW FRAME

- To practice the settings of Draw frame for processing long, medium and short staple cottons..
- To draw the gearing plan and calculate the speed of various parts of the Draw frame.
- To calculate the Drafts between the various drafting rollers of the Draw frame and to calculate the Draft constant of the machine.
- To calculate the production and efficiency of the Draw frame.

GUIDELINES:

- All the 12 experiments given in the list of experiments should be completed and given for the end semester practical examination.
- In order to develop best skills in handling instruments / equipment and taking readings in the practical classes, every two students should be provided with a separate equipment set up for doing experiments in the laboratory.
- The external examiners are requested to ensure that a single experimental question should not be given to more than four students while admitting a batch of 30 students during Board Examinations.

QUESTION PAPER PATTERN & ALLOCATION OF MARKS

Single Experiment is to be given per student

Experiment	50 marks
Write up / diagram / calculations	20 marks
Viva - Voce	05 marks
Total	75 Marks

LIST OF EXPERMIENTS

1. Estimation of the speeds of various parts of Hopper bale breaker / Based on the given gearing diagram.
2. Estimation of the speeds of various parts of ERM cleaner / Based on the given gearing diagram
3. Estimation of the production of scutcher per day of 8 hrs from the data available in the machine / Based on the given gearing diagram
4. Estimation of the speeds and draft calculation of the carding machine.
5. Calculation of Actual Draft and Machine Draft in carding machine using the given data.
6. Estimation of the draft change wheel for a given lap hank to produce the required hank of Sliver in a card.
7. Study of the various card settings and set the Licker-in, Doffer Zones & Flat region of the card to process long staple cotton.
8. Estimation of the production of the card per day from the data available in the machine.
9. Drawing the gearing plan of Draw Frame and calculation of a) Draft between intermediate rollers b) total draft c) Draft constant d) Tension draft and creel draft.
10. Drawing the gearing plan of Draw Frame and calculation of
    a) Front roller speed b) Production per day of 8 hour (assuming the Hank delivered)
11. Calculation of the draft change wheel for a given sliver hank to produce the required hank of sliver in a Draw frame.
12. Study of the Draw frame settings and setting the Draw frame to process Long / Medium / Short staple cotton.

LIST OF EQUIPMENTS AND THE QUANTITY REQUIRED FOR A BATCH OF 30 STUDENTS

Blow room, Carding and Draw frame

Material: - Blow room laps, carding sliver and Draw frame sliver

Carding:

Carding machine – 1

Drawing:

Drawing Machine – 1

SPECIFIC INSTRUCTIONS TO CARRY OUT IN THE PRACTICAL CLASS WORK AS WELL AS THE BOARD PRACTICAL EXAMINATIONS

The students are instructed

1. To do the activities which are pertaining only to the specific experiments they are doing
2. To maintain their work place clean and tidy
3. To handle the tools and other gauges properly and with due care.
4. Not to wander from place to place unnecessarily

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

II YEAR

M- SCHEME

III SEMESTER

2015 – 2016 onwards

FABRIC MANUFACTURE - I PRACTICAL

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36036
Semester	:	III Semester
Subject Title	:	FABRIC MANUFACTURE - I PRACTICAL

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
FABRIC MANUFACTURE - I PRACTICAL	5Hrs	75 Hrs	25	75	100	3 Hrs

RATIONALE:

To enhance the practical knowledge in weaving preparatory processes like cone winding, pirn winding, warping and sectional warping. To dismantle and assemble the various parts in plain power loom. The timing and settings also given for better understanding of each mechanism. These fundamentals help the students to acquire knowledge in automatic and shuttleless weaving machines.

OBJECTIVES:

Cone Winding

To Draw the Passage of material.

To Set the Slub catcher and Tensioner for specific counts.

To calculate the drum shaft speed and Production per drum per hour in kgs.

Pirn Winding

To Draw the Passage of material.

To calculate the spindle speed and Production per spindle per hour in kgs.

To draw the bunch building mechanism .

Sectional Warping

To Draw the Passage of material.

To calculate the Production per hour in kgs.

To draw the gearing plan.

Shedding

To Dismantle and assemble the various parts of the Tappet shedding mechanism with timing and settings.

Picking

To Dismantle and assemble the various parts of the Cone over pick mechanism with timing and settings.

To Dismantle and assemble the various parts of the Under pick mechanism with timing and settings.

Take-up

To Dismantle and assemble the various parts of the 7 wheel take-up motion with timing and settings.

To Calculate the dividend.

Let-off

To Dismantle and assemble the various parts of the negative let-off mechanism with back rest settings.

Auxiliary Motions

To Dismantle and assemble the various parts of the loose reed / fast reed mechanism with timing and settings.

To Dismantle and assemble the various parts of the weft fork mechanism with timing and settings.

Shuttle box

To Dismantle and assemble the various parts of the shuttle box of an over pick loom with reed alignment for the given shuttle.

Drawing & Denting

To draw the warp yarn through heald shaft and reed.

GUIDELINES:

- All the 12 experiments given in the list of experiments should be completed and given for the semester practical examination.
- In order to develop best skills every students should be provided with a separate machine for each mechanism for better understanding in the laboratory.
- The external examiners are requested to ensure that a single experimental question should not be given to more than two students while examining a batch of 30 students during Board Examinations.

QUESTION PAPER PATTERN & ALLOCATION OF MARKS

Single Experiment is to be given per student

Experiment	50 marks
Write up / diagram / calculations	20 marks
Viva - Voce	05 marks
Total	75 Marks

LIST OF EXPERIMENTS

1. Working of High speed cone winder and calculation of the winding speed and production per drum per hour in kg.

2. Working of Pirn winder and calculation of the spindle speed and production per spindle per hour in kg.

3. Passage of material through a Sectional warping machine and calculation of the number of sections, revolutions of each section, drum speed and beaming speed.

4. Setting the Tappet shedding mechanism for proper timing and working.

5. Setting the Cone over pick mechanism for proper timing and working.

6. Setting the under pick (Lever / Cone) mechanism for proper timing and working.

7. Setting the 7 wheel take-up motion for proper timing and working.

8. Setting the Negative let-off mechanism and back rest with proper timing.

9. Setting the Loose reed / Fast reed mechanism for proper timing and working.

10. Setting the Shuttle box of an over pick loom with reed alignment for the given shuttle.

11. Setting the Side weft-fork mechanism for proper timing and working.

12. Drawing and Denting of warp ends for a small section of warp for weaving plain / twill cloths.

LIST OF EQUIPMENT

1. Cone winding machine. – 1
2. Pirn winding machine. – 1
3. Sectional Warping machine. – 1
4. Plain power loom – 3.

SPECIFIC INSTRUCTIONS TO CARRY OUT IN THE PRACTICAL CLASS WORK AS WELL AS THE BOARD PRACTICAL EXAMINATIONS

The students are instructed

1. To do the activities which are pertaining only to the specific experiments they are doing
2. To maintain their work place clean and tidy
3. To handle the tools and other gauges properly and with due care.
4. Not to wander from place to place unnecessarily
5. Not to talk with other students unnecessarily
6. To get their observation notes signed by the staff in charge immediately on completing the experiment
7. To complete their record notes and get it signed by the staff in charge when they come to the next practical class.
8. Not to indulge in any malpractice

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

II YEAR

M- SCHEME

III SEMESTER

2015 – 2016 onwards

COMPUTER APPLICATIONS PRACTICAL

Common to all Engineering Branch

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented for the student Admitted from the Year 2015-2016 on wards)

(Implemented from the academic year 2016-2017 onwards)

Course Name : For All Branches

Subject Code : 30001

Semester : III

Subject title : COMPUTER APPLICATIONS PRACTICAL

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester: 15 Weeks

Course	Instruction		Examination			
			Max.			Duration
	Hours/ week	Hours/ Semester	Internal Assessment	Board Examination	Total	
COMPUTER APPLICATIONS PRACTICAL	4Hrs	60 Hrs	25	75	100	3Hrs

RATIONALE:

The application of Computer knowledge is essential the students of all disciplines of Engineering in addition to their respective branch of study. The Computer Application Practical course facilitates the necessary knowledge and skills regarding creating, working and maintaining the documents and presentation of documents with audio visual effects ina computer and produces necessary skills in E- Learning and Chatting tools..

OBJECTIVES:

On completion of the following exercises, the students will be able to

- Use the GUI operating systems
- Familiarize and customize the desktop
- Use the different facilities available in the word processor
- Prepare Power Point presentation with different formats
- Expose E-learning tools and chatting tools
- Analyze the datasheet
- Create and manipulate the database
- Create different types of charts
- Prepare PowerPoint presentation

- Understand Internet concepts and usage of e-mail

GUIDELINES:

- All the experiments given in the list of experiments should be completed and all the experiments should include for the end semester practical examination.
- The computer systems should be 1:1ratioforpracticalclasses

SYLLABUS
LAB EXERCISES
SECTION – A

GRAPHICAL OPEARTING SYSTEM

Introduction to GUI OS; Features and various versions of GUI OS & its use; Working with GUI OS; My Computer & Recycle bin ; Desktop, Icons and Explorer; Screen description & working styles of GUI OS; Dialog Boxes & Toolbars; Working with Files & Folders; simple operations like copy, delete, moving of files and folders from one drive to another, Shortcuts &Autostart; Accessories and Windows Settings using Control Panel- setting common devices using control panel, modem, printers, audio, network, fonts, creating users, internet settings, Start button & Program lists; Installing and Uninstalling new Hard ware & Software program on your computer - Copying in CD/DVD settings – Recording Audio files.

Exercises

1. a. Installing screen saver and change the monitor resolution by 1280X960
   b. Setting wall papers
   c. Creating, moving, deleting and renaming a folder
   d. Copy, paste and cut a folder/file
   e. Displaying the properties for a file or folder
2. a. Restoring files and folders from Recycle bin
   b. Creating short cuts for folder/file
   c. Finding a file or folder by name
   d. Selecting and moving two or more files/folders using mouse
   e. Sorting folders/files.

WORD PROCESSING

Introduction to Word Processing – Examples- Creation of new documents, opening document, insert a document into another document. Page setup, margins, gutters, font properties, Alignment, page breaks, header footer deleting, moving, replace, editing text in document. Saving a document, spell checker.

Printing a document. Creating a table, entering and editing, Text in tables. Changing format of table, height width of row or column. Editing, deleting Rows, columns in table. Borders, shading, Templates, wizards, drawing objects, mail merge.

Exercises

3. Create the following table and perform the operations given below

DAYS	1	2	3	4	5	6	7	8
MON	⟵TEST⟶		**A**: JPP		CA	RDBMS	TUT	
			B:RDBMS					
TUE	CA	OOP	CN	RDBMS	**A**: RDBMS			
					B: JPP			
WED	CN	RDBMS	OOP	RDBMS	COMMUNICATIO N		CN	CA
THU	OOP	**A**: JPP			CA	RDBMS	CN	OOP
		B: RDBMS						
FRI	COMMUNICATI ON		**A**: RDBMS		OOP	CN	RDBMS	CA
			B: JPP					
SAT	OOPS	RDBMS	CN	CA	---------			

4. Create a standard covering letter and use mail merge to generate the customized letters for applying to a job in various organizations. Also, create a database and generate labels for the applying organizations.
5. Create a news letter of three pages with two columns text. The first page contains some formatting bullets and numbers. Set the document background colour and add 'confidential' as the watermark. Give the document a title which should be displayed in the header. The header/ footer of the first page should be different from other two pages. Also, add author name and date/ time in the header. The footer should have the page number.

SPREADSHEET

Introduction to Analysis Package – Examples - Concepts of Workbook & Worksheets; Using Wizards; Various Data Types; Using different features with Data, Cell and Texts; Inserting, Removing & Resizing of Columns & Rows; Working with Data & Ranges; Different Views of Worksheets; Column Freezing, Labels, Hiding, Splitting etc.; Using different features with Data and Text; Use of Formulas, Calculations & Functions; Cell Formatting including Borders & Shading; Working with Different Chart Types; Printing of Workbook & Worksheets with various options.

Exercises

6. Create a result sheet containing Candidate's Register No., Name, Marks for six subjects. Calculate the total and result. The result must be calculated as below and failed candidates should be turned to red.

   Result is Distinction if Total >= 70 %

   First Class if Total > = 60 % and < 70 %

   Second Class if Total >= 50 % and < 60 %

Pass if Total >= 35 % and < 50 %

Fail otherwise

Create a separate table based on class by using auto filter feature.

7. Create a table of records with columns as Name and Donation Amount. Donation amount should be formatted with two decimal places. There should be at least twenty records in the table. Create a conditional format to highlight the highest donation with blue color and lowest donation with red colour. The table should have a heading.

8. Create line and bar chart to highlight the sales of the company for three different periods for the following data.

SALES BAR CHART

Period	Product1	Product2	Product3	Total
JAN	35	40	50	125
FEB	46	56	40	142
MAR	70	50	40	160

SECTION – B

DATABASE

Introduction – Menus – Tool bar – Create – Edit – Save – Data types – Insert – Delete – Update – View – Sorting and filtering – Queries – Report – Page setup – Print.

Exercises

9. Create Database to maintain at least 10 addresses of your class mates with the following constraints

- Roll no. should be the primary key.
- Name should be not null

10. create a students table with the following fields: Sr.No, Reg. No, Name, Marks in 5 subjects. Calculate total and percentage of 10 students. Perform the following queries.

- To find the details of distinction student
- To find the details of first class students
- To find the details of second class students

11. Design a report for the above exercise to print the consolidated result sheet and mark card for the student.

PRESENTATION

Introduction - Opening new presentation, Parts of PowerPoint window – Opening -Saving and closing presentations - Features of PowerPoint, Background design, Word art, Clip art, Drawings,3D settings - Animations, Sound, Views, types of views - Inserting and deleting slides, arranging slides, slides show, rehearsal, setup show, custom show - Creating custom presentations, action setting, auto content wizard, working with auto content wizard

Exercises

12. Make a marketing presentation of any consumer product with at least 10 slides.
    Use different customized animation effects on pictures and clip art on any four of the ten slides.
13. Create a Presentation about our institution or any subject with different slide transition with sound effect.

INTERNET

Introduction – Getting acquainted with Internet Connection - Browsers – Website URL - Open a website – Net Browsing - Email: Creating E-mail id – Sending , receiving and deleting E-mail - Email with Attachments – CC and BCC - Chatting – Creating Group mail - Google docs – Search Engines – Searching topics .

Most Popular Social Networking Sites : History – Features – Services – Usage of Face book , Twitter and Linkdln.

Transferring data through wifi / bluetooth among different devices.

Introduction to cybercrime – Software Piracy – Viruses – Antivirus Software

Exercises

14. Create an e-mail id and perform the following
    - Write an e-mail inviting your friends to your Birthday Party.
    - Make your own signature and add it to the e-mail message.
    - Add a word attachment of the venue route
    - Send the e-mail to at least 5 of your friends.

15. Create a presentation on Google docs. Ask your friend to review it and comment onit. Use "Discussion" option for your discussions on the presentation.

Hardware and Software Requirements

Hardware Requirements:

- Computers – 36Nos
    - Intel Core i3 Processor
    - 500 GB Hard Disk, 2 MB RAM
    - 14” Monitor
- Projector – 1 Nos
- Laser Printer – 1 No
- Internet Connection – Minimum of 512 KB

Software Requirement

- Any GUI Operating System
- Open Source Software / MS- Office

1. SemesterEndExamination–75 Marks

Content	Max.Marks
Writing Procedure – One Question from Section A	15
Demonstration	15
Results with Printout	5
Writing Procedure – One Question from Section B	15
Demonstration	15
Results with Printout	5
Viva voce	5
Total	**75MARK**

IV SEMESTER

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

II YEAR

M- SCHEME

IV SEMESTER

2015 – 2016 onwards

BASIC ENGINEERING

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36041
Semester	:	IV Semester
Subject Title	:	BASIC ENGINEERING

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
BASIC ENGINEERING	5 Hrs	75Hrs	25	75	100	3 Hrs

Topics and allocation

Sl. No	Topic	Time (hrs.)
1	**Basics of Mechanical Engineering – I**	14
2	**Basics of Mechanical Engineering –II**	14
3	**Basics of Electrical Engineering**	14
4	**Basics of Electronics Engineering**	13
5	**Measuring Instruments and sensors**	13
6	**TEST & REVISION**	07
Total		75

RATIONALE:

The basic fundamental idea about the Fuels, Suction and pump, Air compressors and Humidification, Air conditioning, Clutches and brakes, Transmission of motion and power, A C motors Semiconductors and different types of meter will be taught to the students. To enhance the basics of Mechanical Engineering, Electrical Engineering and Electronics Engineering

Objectives

1. To have knowledge of fuel, steam, pumps, air compressor, air conditioning and bearings.
2. To know about lubrication, clutches, brakes, belts, chains, gears, lathe and welding
3. To have knowledge of fundamentals of electrical engineering, A.C motors and transformers.
4. To understand the fundamental of electronics engineering and transducers.
5. To know about measuring instruments, sensors, earthing and static electricity.

36041 BASIC ENGINEERING

DETAILED SYLLABUS

Contents : Theory

Unit	Name of the Topic	Hours
1	**Basics of Mechanical Engineering – I** **Fuels** –Definition–Examples of different types of fuels– Definition of Calorific Value of Fuel. **Boilers**–Function–Types of Boilers–Advantages and Disadvantages of Fire tube and Water tube Boilers–Uses of Steam for Textile Applications. **Suction**– Definition– Various Applications of Suction in Textile Machines – Study of the working of Blow room Equipments used for Cleaning and Transportation of Fibres using Suction with simple sketches – Study of the working of Equipments used for Maintaining a Clean, Dust free Environment inside the Textile Mills. **Pumps** –Functions–Types of Pumps–Study of the working of a Centrifugal Pump with a simple sketch. **Air Compressors**–Functions– Types of Air Compressors–Study of the working of a Single Acting Single Stage Reciprocating Air Compressor with a simple sketch – Uses of Compressed Air in Textile Applications. **Humidification**– Definition– Principles of Humidification– Definition of Absolute and Relative Humidity– Importance of Humidification in Textile Industry. **Humidification Equipments**– Brief study of the working of Humidification Equipments used in Textile Mills like Jet Spray Humidifiers and Air Washers with simple sketches – Brief study of Centralised Humidification. **Air Conditioning** – Definition – Principles of Air Conditioning– Study of the working of a Window type Air Conditioner with a simple sketch.	14
	Basics of Mechanical Engineering –II **Bearings**–Functions– Need and Importance of Bearings–Types of Bearings – Factors for Selection of Bearings – Brief study of	

2	the Construction of Ball, Roller and Needle Bearings with simple sketches. **Lubrication**–Definition–Purpose of Lubrication– Desirable Qualities of a good Lubricant – Brief study of Continuous Lubrication Systems –Lubrication Systems like Gravity Feed Lubrication System, Pressure Feed Lubrication System and Oil bath Lubrication System – Brief study of the Lubrication Systems available in Modern Textile Machines. **Transmission of Motion and Power**–Different types of Belt drives–Brief study of Flat belt, V belt and Gear belt drives – Merits and Demerits of the different belt drives–Application of the Belt drives in Textile Machines–Brief study of Bush Roller Chain drive and its advantages and disadvantages–Brief study of Spur, Helical, Double Helical, Bevel, Worm and Worm gear drives, Pawl and Ratchet drives – their Advantages and Disadvantages–Brief study of Cams and followers–different types of Cams and Followers - Applications of the above drives in Textile Machines. **Variable Speed drives**–Need for Variable Speed drives in Textile machines – Study of the working of Stepless Cone Pulleys and PIV drives for changing speed. **Clutches and Brakes** – Function of a Clutch– Principle of working of a friction clutch– Study of the Construction and working of Single plate Friction Clutch with a simple figure–Function of a Brake–Study of working of Hydraulic brake with a simple sketch–Study of working of Pneumatic brake with a simple sketch–Difference between a clutch and a brake. **Workshop machines** **Lathe** – Study of description and functions of the parts of a Lathe with a simple line sketch–Brief study of Simple Lathe operations – Facing, Plain turning, taper turning and drilling operations. **Metal joining operations**–Brief Study of Brazing – advantages of brazing –Welding – Types of Welding–Study of Oxy-acetylene Gas welding – process and equipments used with a simple line sketch–Study of Electric Arc welding – process and equipments used.	14
3	**Basics of Electrical Engineering** **Basic Ideas** – Creation of a magnetic field around a current carrying conductor (statement only, No derivations or calculations involved) – Right Hand thumb rule – Electromagnetic Induction – Faraday's laws of Electromagnetic Induction (statement only, No derivations or calculations	14

	involved) – Fleming's RH rule–Force on a current carrying conductor placed in a magnetic field (statement only, No derivations or calculations involved) – Fleming's LH rule. **Definition of Electrical Quantities**: Voltage, current, resistance, power and energy – Units of these quantities. **Fundamentals of Alternating Current** : (No derivations or calculations involved) Representation of Alternating Quantities as Sinusoidal wave form–Definition of AC terms based on the wave form: Instantaneous and Maximum values, RMS value, Cycle, Frequency and Time Period–Idea of Phase Difference and Phase Angle– Power Factor in an AC Circuit–True Power, Apparent Power and Reactive Power– Disadvantages of low Power Factor, Methods to improve Power Factor–Three Phase AC Connections–Advantages of Three Phase Supply over Single Phase Supply–Star and Delta Connections–Properties of Star and Delta Connections–Comparison of Star and Delta Connections. **Fundamentals of Electrical Machines** –Brief study (No derivations or calculations involved) **Induction Motors** – Principle of working of 3 Phase Induction Motors – Types of Induction Motors – Necessity of Starters for starting Induction Motors. Servo motor – Definition – uses. **Transformers**–Principle of Mutual Induction–Study of the parts of a Single Phase Transformer with a simple sketch– Working principle of a Transformer (Basic idea only, no calculations) – Transformation Ratio, Step up and Step down transformers.	
4	**Basics of Electronics Engineering** (Brief study only – No Derivations or Calculations involved) **Basic ideas** – Brief study – Definition of Conductors, Insulators and Semi Conductors (both Intrinsic and Extrinsic) – Electron Emission– different types of electron emission Photoelectric Emission **Semiconductor Devices** – Brief study – Doping of Semi Conductors–P and N types of Doping – Conduction in P and N type Semi Conductors – PN Junction Diode– Properties PN Junction– Conduction through the Diode for Forward and Reverse Bias Connections – Transistors – Construction and working of PNP and NPN Transistors. **Rectifiers** – Function of Rectifiers– Use of Diode as a Rectifier–	13

	Study of working of Half wave, Full wave and Bridge Rectifiers. **Transducers** – Function of Transducers–Types of Transducers– Advantages of Transducers – Principle of Strain Gauges – Construction and Working of Strain Gauges– Application of Strain Gauges in Textile Testing–Principle of working of Photocells–Use of Photocells in textile industry .	
5	**Measuring Instruments and Sensors** (Brief study only – No Derivations or Calculations involved) Sensors: Brief study - Functions of Sensors – Types of Sensors– Application – Construction and Working of Temperature, Pressure, Level, Flow, Force and Humidity sensors Earthing: Importance of Earthing – Methods of Earthing – Definition of Static charges – methods and equipments used to eliminate / reduce the static charges. Measuring Instruments: Instruments used to measure Voltage, current, Power and energy– Construction and working of Voltmeter, Ammeter (moving coil and moving iron), Watt meter (dynamo meter type), Energy meter (Induction type)	13

TEXT BOOKS:

S.No	Titile	Authors	Publisher	Year
1	Thermal Engineering	R.Rudramoorthy	Tata Megraw Hills Educational pvt Ltd. New delhi	2010
2	A Text Book on Hydraulics,Fluid Mechanics and Hydraulic machines	R.S.Khurmi	S.Chand & Co, Ram nager New Delhi- 110055	1981

REFERENCE BOOKS:

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2	A Text Book on Hydraulics,Fluid Mechanics and Hydraulic machines	R.S.Khurmi	S.Chand & Co, Ram nager New Delhi- 110055	1981
3	Mechanical Technology	V.Sivarajan	V.K.Publishers	
4	Welding and Welding Technology	Richard.L.Little	Tata Megraw Hills Pub.co.Ltd.,	2005
5	A Text Book of Electrical Technology	B.L.Theraja	Publication Division,Niraja, New Delhi	
6	Essentials of Electricity	Kennard C.Grahami	D.B.Taraporewala sons & Co., Mumbai	
7	Electrical Machines	Smarajit Ghosh	Person Education (Singapore) P.Ltd., Indian Branch – 482,FIE.Patparaganj ,Delhi – 110 092	2005

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

II YEAR

M- SCHEME

IV SEMESTER

2015 – 2016 onwards

YARN MANUFACTURE II

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36042
Semester	:	IV Semester
Subject Title	:	YARN MANUFACTURE -II

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
YARN MANUFACTURE -II	5 Hrs	75Hrs	25	75	100	3 Hrs

Topics and allocation

Sl. No	Topic	Time (hrs.)
1	**Comber**	14
2	**Speed frame**	14
3	**Ring frame**	14
4	**Modern Ring Frame**	13
5	**Doubling, Reeling, Bundling and Baling**	13
6	**TEST & REVISION**	07
Total		75

RATIONALE:

The basic idea about Comber, Speed Frame, Ring Frame and the working of the various components of the spinning process. The students will be able to understand the objects, principles and Modern developments in Comber and Speed Frame, principles of doubling and drafting in Comber and other functional components. This will enable the students to perform the necessary setting changes required for processing different counts and do calculations related with the production and efficiency of the machines, draft applied etc.

Objectives

- To know about the combing process, preparatory machines to comber and its working.
- To know about the combing cycles, setting between top comb to Nipper and
- Nipper to Unicomb.
- To understand the salient features of modern comber.
- To understand the passage of material through speed frame and its working.
- To know the objects and working of building mechanisms and differential motions in fly frame.
- To know about the working of ring frame.
- To understand the Different types of Top Arm drafting systems.
- To acquire knowledge of the Building Motion.
- To know about the special attachments like auto doffing.
- To know about the compact spinning system.
- To know the salient features of modern Ring frame.
- To learn the methods of Dry and Wet doubling machine.
- To study the Plain Reel and Cross Reel with 7 Lea Motion.
- To get knowledge in Bundling and Baling process.

36042 YARN MANUFACTURE – II

DETAILED SYLLABUS

Contents : Theory

Unit	Name of the Topic	Hours
1	**Comber** Preparatory process for Combing - Objects - Different process sequences in the combing preparation. Brief of comber preparatory machines – Sliver lap, Ribbon lap and lap former machines. Brief study of pre comber and post comber drawing. Comber – Objects, Degree of combing, Passage of material, working of the Comber and Combing cycle. Determination of noil percentage and characteristics of combed yarn. Comber settings - Nipper to detaching rollers - nipper to cylinder and top comb. Salient features of modern comber. Popular machine manufacturers – calculation pertaining to Nips per minute, Length feed per nip and production efficiency.	14
2	**Speed frame** Speed Frame – Objects - Passage of material through the Speed Frame. Functions of different parts of the speed Frame. Roller setting and its importance. Study of different top arm drafting system - SKF and SUSSEN. Principles of winding – Flyer lead and bobbin lead. Functions of the cone drums and differential motion. Objects and brief study of builder mechanism – English Builder. Brief study of servo drives in speed frame. Salient features of modern speed frames. Defects in speed frame roving - causes and remedies. Monitoring device – sliver and roving stop motion - Calculations pertaining to draft, twist and production.	14
3	**Ring frame** Ring Frame - Objects and passage of material through the Ring frame. Functions of different parts of the Ring Frame. Traverse motion for roving feed and its importance. Functions of drafting rollers, aprons, cots, and spacers. Study of top arm drafting systems - SKF, SUSSEN and Lakshmi High Drafting systems. Brief study of different types of rings and travellers and high speed spindles. Study of winding and binding coils and spindle driving systems. Study of working of building motion - cop builds, ring rail movement,. Running-in procedure for new Rings. Roller stands inclination and its effect on spinning tension. Calculations pertaining to draft, twist and production.	14

4	**Modern Ring Frame** Salient features of modern Ring Frames. Special attachments such as spindle eye, auto doffing, Link Coner. Brief study of Pneumafil and balloon control rings. Study of compact spinning system. Methods of driving – study of inverter drives used in Ring Frames. Common defects in ring spun yarns, causes and remedies. Causes of end breakages in ring frame. Brief study of twist factor and its effect on yarn quality. Study of twist, strength and count relationship. Twist factors adopted for different end uses of yarn such as warp, weft, hosiery and high twist yarns. Study of changes made in ring frame during count change.	13
5	**Doubling, Reeling, Bundling and Baling** Doubling - Objects and methods of doubling. Working & passage of material through wet & dry doubling machine. Direction of twist in doubled yarn and its relation to single yarn. Balancing of twist in doubled yarn. Calculation of resultant counts. Study of Doubler winder, Passage of material through Doubler winder. Working and salient features of Two-for-one-Twister. Reeling: objects, types-straight and cross reeling, Study of working of 7 lea and cross lea motion. Study of doffing mechanism. Bundling, Baling and Packing: Objects of bundling and baling. Need for bundling weight correction and its importance. HDPE bag and pallet packing. Checking procedures for EOU.	13

TEXT BOOKS:

S.No	Titile	Authors	Publisher	Year
1	Cotton spinners Hand book	Jaganathan.R	Mahajan Brotheres Ahmedabad 380009	1976
2	Cotton waste industry	Srinivasamoorthy.H.V	Victoria Jubilee Technical Institute,Matunga, Bombay 400019	1976

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REFERENCE BOOKS:

S.No	Titile	Authors	Publisher	Year
1	Manual of cotton spinning volume IV & V	Hanter.W.A	Textile Institute Manchester	1964
2	Cotton spinning	Taggart.W.S	S.S.Shroff	1979
3	Cotton ring spinning	MerrillG.R	Gilbert R-Menill 364 Varnam Ave-Lowell Man	1959
4	A practical guide to Ring spinning	Klein.W	The Textile Institute 10 Black frians street Manchester M3 5 DR UK	1987

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

II YEAR

M- SCHEME

IV SEMESTER

2015 – 2016 onwards

FABRIC MANUFACTURE - II

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36043
Semester	:	IV Semester
Subject Title	:	FABRIC MANUFACTURE - II

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
FABRIC MANUFACTURE - II	5 Hrs	75Hrs	25	75	100	3 Hrs

Topics and allocation

Sl. No	Topic	Time (hrs.)
1	**DOBBY SHEDDING**	**14**
	JACQUARD SHEDDING	**14**
3	**MULTIPLE BOX MOTION AND TERRY WEAVING**	**14**
4	**AUTOMATIC WEAVING**	**13**
5	**WEAVING OF SYNTHETIC TEXTILES & LOOM CALCULATIONS**	**13**
6	**TEST & REVISION**	**07**
Total		**75**

RATIONALE:

This subjects deals about the special mechanisms of power loom such as dobby, jacquard, box motion and terry motion. The students will study about the automatic shuttle looms, synthetic and blended yarn weaving. After studying this subject the student will be able to calculate the production of looms, balancing of machineries and fabric costing in a weaving factory.

OBJECTIVES:

- To know about various types of Dobby mechanism
- To know about various types of Jacquard mechanisms
- To study about multiple box motion & Terry motions
- To study about Automatic looms, their advantages and the mechanisms available
- To have knowledge about Synthetic and blended yarn weaving
- To study loom calculations, costing and balancing of machineries

36043 FABRIC MANUFACTURE - II

DETAILED SYLLABUS

Contents: Theory

Unit	Name of the Topic	Hours
1	**Dobby Shedding** Objects and Classification. Types of dobby – Single lift and Double lift – Characteristics comparison between Single lift and Double lift dobbies. - Positive and Negative dobbies. Right hand and Left hand dobbies. Working of Climax dobby. Pegging for a design. Jack missing – Definition and Causes. Pick finding devices. Cam Dobby – Types -Working of Negative Cam dobby. Study of Cross border dobby and Electronic dobby	**14**
2	**Jacquard Shedding** Objects - Types of Jacquards. Principle of Jacquard shedding. Size of a Jacquard machine. Working of Double Lift Double Cylinder Jacquard with Timing and Setting. Advantages and Disadvantages of Double Lift Double Cylinder Jacquard. Working of Cross border jacquard and its advantages. Jacquard harness mounting - Norwich and London systems and its comparison. Design ties - Types and Casting out. Brief study of Electronic Jacquards.	**14**
3	**Multiple Box Motion and Terry Weaving** **Multiple Box Motion:** Object – classification. Working of 2 x 1 drop box motion. Working of Eccle's drop box motion. Preparation of pattern chain for 4 x 1 drop box motion with and without card saving device. Brief study of Pick-at-will motion. Brief study of box safety device and setting up of drop box motion. **Terry weaving**: - Object - Principles of terry weaving - Working of loose reed terry motion - adjustment of pile length - fringing motion.	**14**
4	**Automatic Weaving** Automatic Looms – Features - Advantages and Classification. Warp stop motion – Object and working of mechanical and electrical Warp stop motions. Working of weft replenishment mechanism. Study of Weft feeler mechanism – mechanical, electrical and optical types. Working of self threading shuttle. Working of Positive warp let-off motion. Comparison of Fabric quality in plain power loom and Auto loom. Fabric defects – Causes and Remedies.	**13**

5	**Weaving of Synthetic Textiles and Loom Calculations** Loom requirements to weave synthetic and blended spun yarns and filament yarns. Common Synthetic Fabric Defects and its remedies. Calculation pertaining to speed, production and efficiency of loom. Heald and Reed calculations. Cover factor calculations. Balancing of machineries in a weaving factory having 200 looms capacity. Calculation of the Ex-Mill price of fabric per meter.	**13**

TEXT BOOKS:

S.No	Title	Author	Publisher	Year of Publishing
1	Hand Book of Weaving	Sabit Adhenur	Technomic Publishing Company, Inc.	2001
2	Woven Fabric Production II	NCUTE	NCUTE New Delhi	2002

REFERANCE BOOKS:

S.No	Title	Author	Publisher	Year of Publishing
1	Modern Preparation and Weaving	A.Ormerod	Wood Head Publishing Ltd, London	1983
2	Principles of Weaving	Marks & Robinson (ATC)	The Textile Institute, Manchester.	1976
3	Weaving Calculations	R.Sengupta	D.B.Taraporevala sons & co Ltd., Mumbai	1996

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

II YEAR

M- SCHEME

IV SEMESTER

2015 – 2016 onwards

ELEMENTARY TEXTILE DESIGN

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36044
Semester	:	IV Semester
Subject Title	:	ELEMENTARY TEXTILE DESIGN

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
ELEMENTARY TEXTILE DESIGN	5 Hrs	75 Hrs	25	75	100	3 Hrs

Topics and allocation

Sl. No	Topic	Time (hrs.)
1	ELEMENTS OF WOVEN DESIGN	14
2	PLAIN WEAVES AND TWILL WEAVES:	14
3	SATEEN , CREPE AND HONEYCOMB WEAVES	14
4	HUCK-A-BACK, MOCK – LENO & BEDFORD CORD WEAVES	13
5	KNITTED STRUCTURES	13
6	TEST & REVISION	07
Total		75

RATIONALE:

The fundamental concepts of woven and knitted fabric structures will be taught to the students. After studying this subject student will be able to analyze various fabrics for the design, draft and peg plan.

OBJECTIVES:

- To know about the basic principles of construction of primary weaves.
- To know about the basic construction of elementary knitted structure.
- To know about the basic construction of miscellaneous elementary weaves.
- To know about the basic construction of Bedford cord, pique weaves.

36044 ELEMENTARY TEXTILE DESIGN

DETAILED SYLLABUS

Contents : Theory

Unit	Name of the Topic	Hours
1	**ELEMENTS OF WOVEN DESIGN** Methods of fabric representation – Weave repeat unit – Construction of draft and peg plans – Methods of indicating drafts and peg plans – Relation between design, draft and peg plan, - Construction of draft and peg plans from given design - Construction of draft from design and peg plans - Construction of designs from given draft and peg plans - (Systems) - types of drafting – Denting.	**14**
2	**PLAIN WEAVES AND TWILL WEAVES:** Plain weave - Characteristics - derivatives of plain weave – Regular and irregular warp rib, weft rib and mat weaves – Use plain weaves –Twill weaves - characteristics – Large regular twills - derivatives of twill weave - waved twills - herringbone twills, broken twills, transposed or re-arranged twills, elongated twills, combination of twill weaves – Uses of twill weaves.	**14**
3	**SATEEN , SATIN, CREPE AND HONEYCOMB WEAVES** Sateen and satin weaves - its characteristics – Regular and irregular sateen and satins. Weaves constructed on satin and sateen bases, simple developments, extensions of sateen weaves, uses of sateen weaves. Crepe weaves: - its characteristics - construction of crepe weaves upon sateen bases, combinations of floating weave with plain threads, crepe weaves produced by reversing, insertion of one weave over another – uses of crepe weaves. Honey comb weaves - its characteristics, ordinary honey comb weaves, brighten honey comb weaves - uses of honey comp weaves	**14**
4	**HUCK-A-BACK,MOCK–LENO&BEDFORDCORD WEAVES** **Huck-a-back weaves** – Ordinary Huck–a-back weaves – Modified Huck-a-weaves – Uses **Mock-leno weaves** - Perforated fabrics - Uses **Bedford cord** – plain faced Bedford cords – Wadded Bedford cords - Twill	**13**

	faced Bedford cords – Uses. Welts and pique weaves – Ordinary Welts structures – Weft wadded welts – fast back welts – waved piques	
5	**KNITTED STRUCTURES** **Weft knitted Structures** – Definition of the terms - Course, Wales, face loop, back loop, needle loop, sinker loop, stitch length, texture. Knit, Tuck and Miss stitch types. Representation of weft knitted structures – symbolic and diagrammatic representation of Single Jersey plain, 1 x 1 rib, 1 x 1 interlock - stitch notation of La coste, milano rib, ponda-di-roma structures. **Warp knitted Structures –** Definition of open lap, closed lap, Over lap, Under lap. Lapping diagram of Full Tricot, Lock Knit, Reverse lock knit, Satin, Queen cord and Shark slim	**13**

TEXT BOOKS:

S.No	Titile	Authors	Publisher	Year
1	Elementary Design & Colour,	Z.Crosiciki	Universal Publishing Corporation, 534, Kalbadevi Road,Dhobi Talao, Mumbai – 400 002	June 1988
2	Grammar of Textile Design	H. Nisbet	D.B. Taraporevala Sons & Co. Pvt. Ltd, Mumbai	1985

REFERENCE BOOKS:

S.No	Titile	Authors	Publisher	Year
1	Watson's Textile Design & Colour,	Z.Crosiciki	Universal Publishing Corporation, Newnes, Butterworths, England	1988
2	Structural Fabric Design	James W. Klibbe	North Carolina State University Printshop	1965
3	Woven Cloth Construction	ATC Robinson R. Mark	Textile Institute, Manchester	1973

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

II YEAR

M- SCHEME

IV SEMESTER

2015 – 2016 onwards

YARN MANUFACTURE - II PRACTICAL

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36045
Semester	:	IV Semester
Subject Title	:	YARN MANUFACTURE – II PRACTICAL

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
YARN MANUFACTURE – II PRACTICAL	5 Hrs	75 Hrs	25	75	100	3 Hrs

RATIONALE:

In Diploma level Engineering education skill development plays a vital role. The skill development can be achieved by on hand experience in various instruments, apparatus and equipment. This is accomplished by doing engineering related experiments in practical classes in various laboratories.

OBJECTIVES

SPEED FRAME

- To practice the various settings of the Speed frame
- To calculate the Draft, Twist and the machine constants of the Speed frame.
- To calculate the speed, production and efficiency of the Speed frame.
- To calculate the coils per inch and the lay constant of the Speed frame.
- To study the working of the builder mechanisms of the Speed frame and set the same for proper working.

RING FRAME

- To practice the various settings of the Ring frame
- To calculate the Draft, Twist and the machine constants of the Ring frame.
- To calculate the speed, production and efficiency of the Ring frame.
- To study the working of the builder mechanisms of the Ring frame and set the same for proper working.
- To practice spindle and lappet gauging in the Ring frame.

DOUBLING FRAME

- To practice the various settings of the Doubling frame
- To calculate the Twist and the machine constants of the Doubling frame.
- To calculate the speed, production and efficiency of the Doubling frame.
- To study the working of the builder mechanisms of the Doubling frame and set the same for proper working.
- To practice changing the twist direction in the Doubling frame.
- To practice spindle and lappet gauging in the Doubling frame.

REELING MACHINE

- To calculate the speed, production and efficiency of the Reeling Machine.
- To study the working of the 7 lea mechanism of the Reeling Machine.
- To study the working of the doffing mechanism of the Reeling Machine.

GUIDELINES:

- All the 12 experiments given in the list of experiments should be completed and given for the end semester practical examination.
- In order to develop best skills in handling instruments / equipment and taking readings in the practical classes, every two students should be provided with a separate equipment set up for doing experiments in the laboratory.
- The external examiners are requested to ensure that a single experimental question should not be given to more than four students while admitting a batch of 30 students during Board Examinations.

QUESTION PAPER PATTERN & ALLOCATION OF MARKS

Single Experiment is to be given per student

Experiment	50 marks
Write up / diagram / calculations	20 marks
Viva	05 marks
Total	75 Marks

LIST OF EXPERIMENTS

1. Estimation of the intermediate draft, total draft and draft constant of the Speed frame.
2. Estimation of twist per inch and twist constant of the Speed frame and calculation of the production per spindle per shift of 8 hrs for the present wheels on the machine. Assume the value for T.M and hank fed.
3. Estimation of coils per inch and lay constant of the speed frame for the present wheels.
4. Estimation of the total draft, intermediate drafts and draft constant of the Ring frame for the present wheels on the machine.
5. Estimation of twist per inch and twist constant in the given Ring (or) Doubling frame and calculation of the production per spindle per shift of A hrs at B% efficiency, when the value of T.M. is C and the hank fed is D for the present wheels on the machine.
6. Estimation of time taken to produce A kg. of yarn with count B from C spindles of the given ring frame at D% efficiency.
7. Spindle and lappet gauging for 4 spindles on any one side of the Ring (or) Doubling frame.
8. Calculation of the traveller speed in meter per second and traveller lag at the full and bare bobbin and estimation of the variation in twist in Ring (or) Doubling frame for the present wheels on the machine.
9. Changing of the direction of twist in Ring (or) Doubling frame.
10. Working of Building mechanism of the Ring (or) Doubling frame.
11. Balancing of spinning machinery for 25000 spindles capacity by assuming suitable values.
12. Working of the Reeling machine with 7 lea and cross lea mechanisms.

LIST OF EQUIPMENTS AND THE QUANTITY REQUIRED FOR A BATCH OF 30 STUDENTS

Comber, Speed frame, Ring frame, Doubling frame and Reeling machines

Material :- Cans of carding sliver, Sliver laps, Ribbon laps, Roving bobbins and Ring Cops.

1 Speed frame – 1

2 Ring frame – 1 (or) Doubling frame – 1

3 Reeling Machine – 1

SPECIFIC INSTRUCTIONS TO CARRY OUT IN THE PRACTICAL CLASS WORK AS WELL AS THE BOARD PRACTICAL EXAMINATIONS

The students are instructed

1. To do the activities which are pertaining only to the specific experiments they are doing
2. To maintain their work place clean and tidy
3. To handle the tools and other gauges properly and with due care.
4. Not to wander from place to place unnecessarily
5. Not to talk with other students unnecessarily
6. To get their observation notes signed by the staff in charge immediately on completing the experiment
7. To complete their record notes and gets it signed by the staff in charge when they come to the next practical class.
8. Not to indulge in any malpractice

SAFETY PRECAUTIONS TO BE FOLLOWED

The students while doing the experiments,

1. Should wear safe foot wear, preferably shoes.
2. Should keep their shirts tucked in.
3. Should do settings on the machines only after the mains supply is switched off.
4. Should inform the staff in charge immediately if they find any unsafe condition in the machine.
5. Should not wear loose shirts.
6. Should not open the doors and covers while the machine is running.
7. Should not start running a machine without doing regular safety checks and closing the safety doors.

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

II YEAR

M- SCHEME

IV SEMESTER

2015 – 2016 onwards

FABRIC MANUFACTURE II PRACTICAL

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36046
Semester	:	IV Semester
Subject Title	:	FABRIC MANUFACTURE – II PRACTICAL

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
FABRIC MANUFACTURE – II PRACTICAL	5 Hrs	75 Hrs	25	75	100	3 Hrs

RATIONALE:

To enhance practical knowledge about the dobby, jacquard, drop box and terry mechanisms students will get hands on training by dismantling and assembling the each mechanism individually.

And also the mechanisms of automatic shuttle looms like positive let-off, cop changing, warp stop motion will be dismantled and assembled during the practical.

OBJECTIVES

Dobby

- To dismantle and assemble the various parts of the Dobby mechanism.
- To set the dobby for correct working with timing and setting.
- To peg the lattice for LH dobby for the given weaves
- To peg the lattice for RH dobby for the given weaves

Drop box

- To dismantle and assemble the various parts of the Drop box mechanism for correct working with timing and setting.
- To prepare a chain of metallic cards for weaving a given pattern without card saving device in a drop box loom.
- To prepare a chain of metallic cards for weaving a given pattern with card saving device in a drop box loom

Jacquard

- To draw the diagram of a jacquard and to understand the working of a Jacquard mechanism with functions of various parts.
- To draw the timing diagram of a jacquard for various actions.

Automatic loom

- To Dismantle and assemble the various mechanisms of the automatic loom with timing and settings.

Loom and fabric calculations

- To study about the Quality particulars of Commercial Fabrics like Long Cloth, Casement,
- Cambric, Voile, Mull and Poplin.
- To Calculate and understand the Cost of fabric per meter for the given Striped / Checked fabric

GUIDELINES:

- All the 12 experiments given in the list of experiments should be completed and given for the end semester practical examination.
- In order to develop best skills every students should be provided with a separate Weaving machine for exposing the skills in the laboratory.
- The external examiners are requested to ensure that a single experimental question should not be given to more than two students while examining a batch of 30 students during Board Examinations.

QUESTION PAPER PATTERN & ALLOCATION OF MARKS

Single experiment is to be given per student

Experiment	50 marks
Write up / diagram / calculations	20 marks
Viva	05 marks
Total	75 Marks

LIST OF EQUIPMENTS

Dobby loom	- 1 no
Jacquard loom	- 1 no
Terry loom	- 1 no
Drop box loom	- 1 no
Automatic loom	- 1 no

SPECIFIC INSTRUCTIONS TO CARRY OUT IN THE PRACTICAL CLASS WORK AS WELL AS THE BOARD PRACTICAL EXAMINATIONS

The students are instructed

1. To do the activities which are pertaining only to the specific experiments they are doing
2. To maintain their work place clean and tidy
3. To handle the tools and other gauges properly and with due care.
4. Not to wander from place to place unnecessarily
5. Not to talk with other students unnecessarily
6. To get their observation notes signed by the staff in charge immediately on completing the experiment
7. To complete their record notes and gets it signed by the staff in charge when they come to the next practical class.
8. Not to indulge in any malpractice

SAFETY PRECAUTIONS TO BE FOLLOWED

The students while doing the experiments,

1. Should wear safe foot wear, preferably shoes.
2. Should keep their shirts tucked in.
3. Should do settings on the machines only after the mains supply is switched off.
4. Should inform the staff in charge immediately if they find any unsafe condition in the machine.
5. Should not wear loose shirts.
6. Should not open the doors and covers while the machine is running.
7. Should not start running a machine without doing regular safety checks, closing the safety doors and in the absence of the teacher.

LIST OF EXPERIMENTS

1. Setting the Dobby mechanism for correct working with timing.
2. Pegging the lattice for LH dobby for the given weaves: Honey Comb and Mock Leno.
3. Pegging the lattice for RH dobby for the given weaves: Huck-a-back and Herring Bone Twill
4. Setting the Drop box mechanism for correct working with timing.
5. Preparation of a chain of metallic cards for weaving a given pattern without card saving device in a drop box loom.
6. Preparation of a chain of metallic cards for weaving a given pattern with card saving device in a drop box loom.
7. Setting the Jacquard mechanism for correct working with timing.
8. Setting the Terry mechanism for correct working with timing.
9. Setting the Mechanical weft feeler in cop changing mechanism for correct working with timing
10. Setting the Cop changing mechanism for correct working with timing.
11. Setting the Warp stop motion for correct working with timing.
12. Setting the Positive let-off motion for correct working with timing.

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

II YEAR

M- SCHEME

IV SEMESTER

2015 – 2016 onwards

ELEMENTARY TEXTILE DESIGN PRACTICAL

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36047
Semester	:	IV Semester
Subject Title	:	ELEMENTARY TEXTILE DESIGN PRACTICAL

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
ELEMENTARY TEXTILE DESIGN PRACTICAL	4 Hrs	60 Hrs	25	75	100	3 Hrs

Rationale:

To enhance the practical knowledge to analyse the sample of cloth, this fundamental, help the students to acquire knowledge about the design, draft and peg plan loom requirement to weave the cloth.

OBJECTIVES

Woven fabric analysis

To identify warp and weft threads, selvedge, weaving method and machine to produce the fabric.

To analyze the given fabric and find out design, draft and peg plan.

Woven fabric quality particulars

To find out the particulars like Ends and picks per unit length, Count of warp and weft, crimp percentage.

Knitted fabric analysis

To identify warp and weft threads, selvedge, weaving method and machine to produce the fabric.

To analyze the given fabric and find out design, draft and peg plan

Knitted fabric quality particulars

To find out the particulars like Ends and picks per unit length, Count of warp and weft, crimp percentage

Fabric costing

With the above particulars the student has to do fabric costing by suitable formulae explained to them during practical.

Guidelines:

- All the 12 cloth samples given in the list of experiments should be completed and given for the end semester practical examination.
- In order to develop best skills every students should be provided with a separate fabric sample of suitable size.
- The external examiners are requested to ensure that a single experimental question should not be given to more than two students while examining a batch of 30 students during Board Examinations

QUESTION PAPER PATTERN & ALLOCATION OF MARKS

Single experiment is to be given per student

Experiment / Design Work	60 marks
Write up	10 marks
Viva - Vice	05 marks
Total	75 Marks

LIST OF EXPERIMENTS

1. Analysis of a given plain weave cloth sample for the cloth particulars and estimation of the cost per metre of the fabric.
2. Analysis of given twill weave cloth sample for the cloth particulars and estimation of the cost per metre of the fabric.
3. Analysis of a given drill cloth sample for the cloth particulars and estimation of the cost per metre of the fabric.
4. Analysis of a given satin weave cloth sample for the cloth particulars and estimation of the cost per metre of the fabric.
5. Analysis of a given crepe weave cloth sample for the cloth particulars and estimation of the cost per metre of the fabric.
6. Analysis of a given honey comb weave cloth sample for the cloth particulars and estimation of the cost per metre of the fabric.
7. Analysis of a given huck-a-back weave cloth sample for the cloth particulars and estimation of the cost per metre of the fabric.
8. Analysis of a given mock leno weave cloth sample for the cloth particulars and estimation of the cost per metre of the fabric.
9. Analysis of a given Bedford cord weave cloth sample for the cloth particulars and estimation of the cost per metre of the fabric.
10. Analysis of a given single jersey knitted cloth sample for the cloth particulars and estimation of the cost per metre of the fabric.
11. Analysis of a given 1 X 1 Rib knitted cloth sample for the cloth particulars and estimation the cost per metre of the fabric.
12. Analysis of a given 1 X 1 interlock knitted cloth sample for the cloth particulars and estimation of the cost per metre of the fabric.

LIST OF EQUIPMENT

Equipments required:- Beesley`s Balance 1 no

Materials required : - 2 Meters of each samples for a batch of 30 students.

SAFETY PRECAUTIONS TO BE FOLLOWED

The students while doing the experiments,

1. Should wear safe foot wear, preferably shoes.
2. Should keep their shirts tucked in.

V SEMESTER

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

III YEAR

M- SCHEME

V SEMESTER

2015 – 2016 onwards

TEXTILE TESTING

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36051
Semester	:	V Semester
Subject Title	:	TEXTILE TESTING

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
TEXTILE TESTING	5 Hrs	75Hrs	25	75	100	3 Hrs

Topics and allocation

Sl. No	Topic	Time (hrs.)
1	MOISTURE AND ITS RELATIONS IN TEXTILES	14
2	FIBRE TESTING	14
3	YARN TESTING:	14
4	FABRIC TESTING:	13
5	STATISTICAL QUALITY CONTROL	13
6	TEST & REVISION	07
Total		75

RATIONALE:

This subject deals about moisture and its relations in textiles, fibre testing, yarn testing, fabric testing and stastical quality control. After studying this subject, student will be able to understand the principles & working of testing instruments.

OBJECTIVES

- To know the relationship of moisture with textile and related terms & definitions.
- To understand the principle and the methods of determining the moisture in the atmosphere and the textile materials.
- To know the properties and their importance of fibre this is the raw material for all the textile goods.
- To understand the principles and the methods of testing the fibres to determine their basic characteristics.
- To know the properties and the importance of the yarn.
- To understand the principles and the methods of testing the yarn to determine its properties
- To know the quality characteristics of the fabric required for different end uses.
- To study the principles and the methods of testing the fabric to determine their quality characteristics.
- To study the statistical methods involved in controlling the quality of the textile products during their manufacture
- To learn about the application of the statistical methods to suit textile processes.

36051 TEXTILE TESTING

DETAILED SYLLABUS

Content : Theory

Unit	Name of the Topic	Hours
1	**MOISTURE AND ITS RELATIONS IN TEXTILES** **Humidity and its importance in Textiles** - Definitions of Absolute Humidity, Relative Humidity, Standard Testing atmospheric condition, Measurement of Humidity - Wet and dry bulb Hygrometer, Definition of Moisture content, Moisture regain - Estimation of moisture content and regain using Conditioning oven and Shirley Moisture meter, Standard regain – Definition - standard regain values of cotton, viscose, silk, wool, nylon and polyester - Effect of moisture regain on fibre properties	14
2	**FIBRE TESTING** Length – Importance of fibre length - Definition of effective length - Methods of measuring fibre length by Baer Sorter and Digital Fibro graph. Fibre fineness - Importance of fibre fineness - Methods of measuring fibre fineness by Sheffield micronaire instrument. Fibre maturity – Importance, measurement of fibre maturity by sodium hydroxide swelling method - Maturity ratio and Maturity coefficient. Fibre strength - Importance and method of measuring fibre strength by Stelometer . Estimation of trash content by Shirley Trash Analyser. Fibre Quality Index - Brief idea about High volume instrument and Advanced Fibre Information System(AFIS)	14
3	**YARN TESTING** Yarn count – Determination of yarn count by Auto sorter and Beesley balance - Importance of CSP and RKM - Importance of Twist - Estimation of yarn twist – single yarn, doubled yarn. Importance of yarn strength - Principle of working of yarn strength testers – CRE,CRL and CRT - Working of single yarn strength tester of pendulum lever type, lea strength tester and principle of Instron tester. Yarn irregularities – thick, thin, slub, nep - Methods of Assessing yarn evenness by yarn - appearance board and Uster Evenness Tester - Brief study of Uster classimate.	14

4	**FABRIC TESTING** Crimp-Definition, Importance – Shirley crimp tester. Study of Shirley stiffness tester and Shirley crease recovery tester. Definition of fabric handle, serviceability, abrasion, pilling and drape. Importance of fabric tensile strength, tearing strength and bursting strength. Study of fabric tensile strength tester. Definition of Fabric Air Permeability and Fabric Air Resistance	13
5	**STATISTICAL QUALITY CONTROL** Classification and Tabulation of Data - Frequency Diagram – Histogram and frequency polygon. Measures of Central tendency - Mean, Median, Mode. Simple Calculation of Mean, Median, Mode. Measures of dispersion - Mean Deviation, Percent Mean Deviation, Standard Deviation and Co-efficient of variation. Simple calculation of MD,PMD,SD & CV. Normal distribution curve and its properties. Quality Control Chart - Definition, use, Construction of control chart for Averages and Ranges.	13

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TEXT BOOKS:

S.No	Titile	Authors	Publisher	Year
1	Hand Book of Textile Testing and quality Control	E.B.Groover and D.S.Hamby	Mohinder Singh Sejwal (for Wiley Eastern Ltd New Delhi,India	1960
2	Hand Book of Methods of Test for Cotton Fibers Yarn and Fabrics	V.Sundaram and R.L.N.Iyengar	CTRL.,Mumbai	1988
3	ISI Hand book of Textile Testing		Indian Standard Institution, New Delhi, India	1982

REFERENCE BOOKS:

S.No	Titile	Authors	Publisher	Year
1	Principles of Textile Testing	J.E.BOOTH	Butterworth Scientific London	1996
2	The Characteristics of Raw Cotton Vol II Part-I in the series manual of Cotton Spining	E.Lord	The Textile Institute and Butterworth,England	1961
3	Methods of Test for Textiles – B.S.Hand book No.11,	B.S.I	British Standards Institution,London, England	1963
4	Method of Test for Textiles BS Hand book NO 11,	B.S.I	British Standards Institution,London, England	1963
5	Statistical methods	Gupta	S.Chand & Co,.New Delhi	1983
6	An Outline of statistical methods for use in the Textile Industry	A.Brearley & D.R.Cox	WIRA, LEEDS,U.K.	1974
7	Theory and problems of Statistics	M.R.Spiegel	McGraw Hill, International Book company Newyork,London	1972

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

III YEAR

M- SCHEME

V SEMESTER

2015 – 2016 onwards

TEXTILE WET PROCESSING

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36052
Semester	:	V Semester
Subject Title	:	TEXTILE WET PROCESSING

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
TEXTILE WET PROCESSING	5 Hrs	75Hrs	25	75	100	3 Hrs

Topics and allocation

Sl. No	Topic	Time (hrs.)
1	**Preparatory and Bleaching Process**	14
2	**Dyeing Process**	14
3	**Printing Process**	14
4	**Finishing Process**	13
5	**Quality and pollution Control**	13
6	**TEST & REVISION**	07
Total		75

RATIONALE

To enhance knowledge in processing concepts, this subject is introduced.

To understand the preparatory process in processing, a well detailed syllabus is given.

To improve the knowledge in dying, printing, finishing, quality & pollution control topics are included.

Objectives

- To understand the Preparatory process of Textiles
- To learn about Process of Bleaching.
- To learn different types of Dyes and applications
- To learn about varies processing machineries.
- To understand the types of Printing and Techniques
- To know about the screen preparation
- To know about different Textile finishes and Application
- To learn about special finishes and advantages
- To understand the Quality control methods in Wet Processing.
- To understand the Eco- friendly Processing& Effluent Treatment process

36052 TEXTILE WET PROCESSING

DETAILED SYLLABUS

Content : Theory

Unit	Name of the Topic	Hours
1	**Preparatory and Bleaching Process** Impurities present in grey cotton and cotton fabric - sequence of wet processing treatments with objectives of each treatment - Singeing - Gas Singeing Machine for woven fabric with line diagram - Desizing - Continuous desizing method and its merits - Enzyme desizing - Scouring - Mechanism of scouring - Process of caustic scouring using high pressure kier. **Bleaching** – Hydrogen Peroxide Bleaching- Continuous scouring and bleaching using Continuous Bleaching Range (CBR) –Optical Brightening Agent treatment	14
2	**Dyeing Process** Definition of dyeing - Classification of dyes based on their mode of application - Dyeing of cotton with Reactive dyes and vat dyes - Dyeing of wool with acid dyes - Dyeing of silk with basic dyes - Dyeing of Polyester with Disperse dyes - Dyeing machines - Working of jigger Soft flow jet dyeing machine - HTHP Beam dyeing machine, cheese dyeing machine. Garment dyeing – Advantage and disadvantage – Working of drum type Garment dyeing machine.	14
3	**Printing Process** Definition and objective of printing - Comparison between dyeing and printing –Styles and methods of printing - Definition and functions of Ingredients of printing paste. Direct style of printing with pigments on cotton - Direct style of printing with reactive dyes on cotton - Direct style of printing with Disperse dyes on polyester - Screen preparation - Flat bed screen printing machine - Rotary screen printing machine - curing machine -steamer	14
4	**Finishing Process** Purpose of finishing - Stiff finishing of cotton fabric with Starch, Polyvinyl Acetate –Types of softeners and their properties - wrinkle free finish-Sanforizing – Mercerisation - Advantages – Chainless mercerising machine - calendering - Hot air stenters	13

	Anti crease finish with DMDHEU Resin - Brief study on antimicrobial finish - UV protective finish - water repellent finish - Flame retardant finish (Only objectives and recipe)	
5	**Quality and pollution Control** Importance of Quality Control –Different Fastness Tests for dyed and printed materials - Determination of wash fastness - Wet and Dry rubbing fastness – Computer Colour Matching - Objectives & Limitations – Importance and need of environment protection - Air, water and noise pollution. Brief study on Effluent Treatment Process flow chart only. Brief study on eco-friendly processing - List of banned chemicals and alternatives.	13

TEXT BOOKS:

S.No	Titile	Authors	Publisher	Year
1	Technology of Textile Processing Vol.3 Technology of Bleaching	Shenai V.A.	Shevak Publications 306 Shri Hanuman Industrial Estate Gousmbekar Road,Wadala Mumbai – 37	1981
2	Technology of Textile Processing, Vol.2 Chemistry of dyes & Principles of dyeing	Shenai V.A.	Shevak Publications 306 Shri Hanuman Industrial Estate Gousmbekar Road Wadala, Mumbai - 37	1983
3	Technology of Textile Processing, Vol.6 Technology of Dyeing	Shenai V.A.	Shevak Publications 306 Shri Hanuman Industrial Estate Gousmbekar Road Wadala, Mumbai - 37	1980

REFERENCE BOOKS :

S.No	Titile	Authors	Publisher	Year
1	Technology of Textile Processing, Vol.4 Technology of Printing	Shenai V.A.	Shevak Publications 306 Shri Hanuman Industrial Estate Gousmbekar Road Wadala, Mumbai - 37	1979
2	Technology of Textile Processing, Vol. 10 Technology of Finishing	Shenai V.A.	Shevak Publications 306 Shri Hanuman Industrial Estate Gousmbekar Road Wadala Mumbai – 37	1987
3	Textile Printing	Miles L.W.C.	Society of Dyers & Colourist Perlein House 82 Gratlan Road, Broard fard West Yarkshire, England	1981
4	An Introduction to Textile Finishing	Marsh J.T.	B.I.Publications 54 Janpath New Delhi 110 001	1982

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

III YEAR

M- SCHEME

V SEMESTER

2015 – 2016 onwards

ADVANCED TEXTILE DESIGN

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36053
Semester	:	V Semester
Subject Title	:	ADVANCED TXTILE DESIGN

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
ADVANCED TEXTILE DESIGN	5 Hrs	75Hrs	25	75	100	3 Hrs

Topics and allocation

Sl. No	Topic	Time (hrs.)
1	FIGURING WITH EXTRA THREADS	14
2	BACKED CLOTHS	14
3	DOUBLE CLOTHS	14
4	FIGURED PIQUES AND LENO STUCTURE	13
5	PILE STRUCTURES	13
6	TEST & REVISION	07
Total		75

RATIONALE

To understand about the figuring with extra threads, backed cloths, figured piques and leno structure & pile structures.

OBJECTIVES:

- To understand the extra warp and extra weft figuring.
- To have knowledge about backed cloths.
- To know about double cloth.
- To understand the figured pique structure.
- To know about the principle of construction of leno structure.
- To understand terry pile structures.
- To have knowledge about velvet and velveteen's.

36053 - ADVANCED TEXTILE DESIGNS

DETAILED SYLLABUS

CONTENTS

Unit	Name of the Topic	Hours
I	**FIGURING WITH EXTRA THREADS:** Methods of introducing extra figuring threads - methods of disposing of surplus extra threads - comparison of extra warp with extra weft figuring - extra warp figuring -figuring with one extra warp, two extra warps. Extra weft figuring - figuring with one extra weft , two extra wefts - clipped spot effects.	14
II	**BACKED CLOTHS:** Principles of constructions - weft backed cloths – Reversible weft backed Weaves – Methods of weft backing standard weaves – warp backed cloths - Reversible warp backed Weaves - Methods of warp-backing standard weaves – figured backed – Warp Backed Figured cloths – Weft Backed Figured cloths. Backed cloths with wadding threads – Weft backed and warp wadded design - Warp backed and weft wadded design. Interchanging backed cloths – Imitation backed cloths.	14
III	**DOUBLE CLOTHS:** Classifications of double cloth - self stitched double cloths – Construction of squared paper designs – selection of suitable stitching position – face to back and back to face stitching wadded double cloths – weft wadded double cloths – warp wadded double cloths – centre - stitched double cloths - centre warp stitching centre weft stitching. Interchanging plain double cloths. Trible cloth – systematic Construction of trible cloth.	14
IV	**FIGURED PIQUES AND LENO STUCTURE:** Figured Pique fabrics - classifications of the structures - loose back piques - half fast back piques – fast back piques. method of designing - four pick , five pick and six pick, Structures. Leno structure:- the principle of leno structure , Formation of basic sheds in leno weaving - leno weaving with flat steel doup with an eye.	13
V	**PILE STRUCTURES:** Terry pile structures - formation of the piles , terry weaves – 3 pick , 4 pick , 5 pick and 6 pick terry - terry	13

	ornamentation - stripe and check dobby designs , figured terry pile fabrics. Weft pile structures:- All over or plain velveteens – plain back velveteens - length of the pile - density of the pile - changing the density of the pile. fast pile structures .Twill back velveteens , corded velveteens or corduroy. Velvet – All over or continuous pile structure - Fast pile structure.	

TEXT BOOKS:

S.No	Titile	Authors	Publisher	Year
1	Grammar of Textile Design	H. Nisbet	D.B. Taraporevala Sons & Co. Pvt. Ltd, Mumbai	1985
2	Watson's Advanced Textile Designing,	Z.Crosiciki	Universal Publishing Corporation, Newnes, Butterworths, England	1989
3	Structural Fabric Design	James W. Klibbe	North Carolina State University Printshop Raleigh NC	1965

REFERENCE BOOKS:

S.No	Titile	Authors	Publisher	Year
1	Woven Cloth Construction	ATC Robinson R. Mark	Textile Institute, Manchester	1973
	Analysis Of Woven Fabrics	A.F. Barker & E.Midgley	Textile Institute, Manchester	2007

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

III YEAR

M- SCHEME

V SEMESTER

2015 – 2016 onwards
ELECTIVE I

ADVANCED TEXTILE MANUFACTURE

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36071
Semester	:	V Semester
Subject Title	:	**ELECTIVE I** ADVANCED TEXTILE MANUFACTURE

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
ELECTIVE I ADVANCED TEXTILE MANUFACTURE	5 Hrs	75Hrs	25	75	100	3 Hrs

Topics and allocation

Sl. No	Topic	Time (hrs.)
1	**TEXTURISATION**	**14**
2	**MODERN SPINNING**	**14**
3	**MODERN WEAVING**	**14**
4	**NON – WOVENS**	**13**
5	**KNITTING TECHNOLOGY**	**13**
6	**TEST & REVISION**	**07**
Total		**75**

RATIONALE

To study the latest Texturisation process, Modern developments in spinning, Weaving, Knitting and non-woven's, and this subject is included in the scheme.

To enhance the knowledge in false twist texturing, non- woven manufacturing detailed syllabus is given.

To enhance the knowledge in Rotor spinning, Friction spinning, Warp knitting and Weft knitting detailed syllabus in projectile, rapier, jet, multiphase weaving is given.

Objectives

- To know about the various processes involved in Texturisation process.
- To have knowledge about Rotor spinning machine, DREF spinning.
- To know about various other systems of modern spinning and yarn properties.
- To know about the modern shuttle less weaving machines and multi phase looms
- To know about different types of non-woven and their manufacturing methods.
- To know the applications of non-woven.
- To know about weft & warp knitting – working and uses.

ELECTIVE I **36071 ADVANCED TEXTILE MANUFACTURE**

DETAILED SYLLABUS

CONTENT : THEORY

Unit	Topic	Time
1	**TEXTURISATION** Texturisation - Introduction – objects – Type of Textured yarns – Properties of Textured yarns. Brief study of Texturing methods - false twist texturing – stuffer box texturing – edge crimping texturing – gear crimping texturing – knit de knit texturing – Air jet texturing – Advantages of textured yarns.	14
2	**MODERN SPINNING** **Rotor spinning** – Introduction – Basic principle, constructional details and working of the Rotor Spinning Machine – Detailed study of all the parts of Rotor Spinning machine – structure of rotor yarn – yarn characteristics - Strength, elongation, unevenness, hairiness and imperfections. Yarn faults and remedial measures – end uses. **Friction Spinning**: Principle of operation – yarn formation in - DREF 2 and - DREF 3 processes – Advantages and Disadvantages – raw material requirement and fiber characteristics for friction spinning. Murata Vortex Spinning – working principle. Core and cover yarn spinning. Comparison of Ring, Rotor, DREF and Vortex yarns.	14
3	**MODERN WEAVING** Shuttleless weaving – Types of Shuttleless looms. Projectile weaving – Brief study of Sulzer Projectile weaving machine, study of torsion bar picking and matched cam beat up motions. Rapier weaving – Principles of Rapier weaving (Dewas and Gaubler), principles of Rigid and flexible rapiers. Air Jet weaving – weft inserting mechanism. Weft accumulators – their need and importance. Types of selvedges formed in Shuttleless weaving machines. Brief idea about multiphase weaving machines.	14
4	**NON – WOVENS** Introduction – Definition – classification of different types of non woven – Production process: web formation – principles of dry laid,	13

	wet laid and random laid web formation. Types of Web bonding: Brief study of Chemical bonding - adhesive boding, saturation and spray techniques. Thermal bonding: calendar bonding, through air thermal bonding. Mechanical bonding: needle punching. Applications of nonwoven fabrics.	
5	**KNITTING TECHNOLOGY** Classification – Properties of knitted fabrics – plain single jersey fabrics – rib fabrics – inter lock fabrics. Knitting elements –Cam, Sinker, Needles – latch, beard, compound needles (Parts and Function). Passage of material through single jersey weft knitting machine and Knitting action of latch needles. Warp knitting: - Introduction, classification – definition of over lap & under lap. Knitting action of bearded needle in Tricot machine. Properties of warp knitted fabrics. Comparison of weft knitting and warp knitting.	13

TEXT BOOKS:

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S.No	Title	Author	Publisher	YEAR
1	Practical Open-end Spinning	S- Haran Halli	Mahajan Publications Ahamadabad	1990
2	Norms for Spinning	D.Mohan raj	SITRA	2010

REFERENCE BOOKS:

S.No	Title	Author	Publisher	YEAR
1	Man-made Fibres	P.W.Moncrieff,	Newens Buttesworth London	1975
2	Textile Fibres Vol-I V.	A.Shenai	Sevak publication	1996
3	Modern Preparation and Weaving Machinery	A.Ormerod	Butterworth, London	1983
4	Process control in Spinning	Garde and Subramaniam	ATIRA	1978
5	Open-end Spinning	Rohlena etal	Elsevier scientific Publishing Co. Amsterdam New York	1976
6	Winding	BTRA	BTRA,Silver Jubilee Monograph Series	1981
7	Knitting Technology	David.J.Spencer	Acadamic publication	1982
8	An Introduction to weft knitting	A.Smirfitt	Merrow publication England	1975
9	An Introduction to warp knitting	Thomson	Merrow publication England	1971

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

III YEAR

M- SCHEME

V SEMESTER

2015 – 2016 onwards

ELECTIVE - I

TECHNICAL TEXTILES

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36072
Semester	:	V Semester
Subject Title	:	ELECTIVE - I TECHNICAL TEXTILES

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
ELECTIVE - I TECHNICAL TEXTILES	5 Hrs	75 Hrs	25	75	100	3 Hrs

Topics and allocation

Sl. No	Topic	Time (hrs.)
1	INTRODUCTION	14
2	MEDICAL TEXTILES	14
3	GEO TEXTILES	14
4	FUNCTIONAL CLOTHING	13
5	TRANSPORTATION TEXTILES	13
6	TEST & REVISION	07
Total		75

RATIONALE

To suit the present industrial need, this new subject is introduced. It is one of the versatile field for job opportunity.

To understand the basic concepts in Medical textiles, Geo textiles, Filtration, Agro, Sports and Transportation textiles are taught to the students.

Objectives

- To know about the Technical textiles and classification of technical textiles.
- .To know about the Medical textiles and classification of medical textiles, characteristics of material used.
- To know about the geo textiles and function of geo textiles.
- To know about the functional clothing and classification of protective clothing.
- To know about the Transportation textiles. Fibre and yarns used in the Transportation textiles.

V Semester

ELECTIVE I 36072 TECHNICAL TEXTILE

DETAILED SYLLABUS

Content : Theory

Unit	Name of the Topic	Hours
1	**INTRODUCTION:** Introduction to technical textiles – Definition – Difference between technical textiles and other textiles – classification of Technical textiles and applications (Agriculture, Horticulture, Civil, Medical, Geo Textrile, Transportation, Safety and sports) Types of fibres used and properties Ultra fine, Micro fibres, Nano fibres, Hollow fibres, Aramid fibres, Carbon, Nomex, Kevlar and Glass fibres.	14
2	**MEDICAL TEXTILES:** Definitions – characteristics of material used.- classification of surgical textiles – Application - Fibres used in Non-implantable materials like wound dressing, Bandage and gauze cloth. Fibres used in implantable materials like vascular graft, sutures and heart valves. Fibre requirements for Extra corporeal devices such as skin, lever and kidney. Fibre requirements in healthcare and hygiene products such as surgical gowns, masks and wipes.	14
3	**GEO TEXTILES** Geo Textile: Definition – geo textile properties – physical, mechanical, hydraulic, environmental. Function of geo textiles (separation, Filtration reinforcement, drainage and protection) Types of Geo textiles:- Brief study of Geo grids, Geo membranes - Woven and Non Woven geo textile products.Application of geo textiles – Road work, railway work, erosion control, Drainage systems.	14
4	**FUNCTIONAL CLOTHING:** Definition – classification – safety and Protective Clothing (Environmental hazard) – Fibres used, properties and application of High temperature clothing **–** flame protective clothing – chemical Protective Clothing – Electro Protective Clothing - High visibility clothing, - Defense clothing (Camouflage dress, Bullet proof, Non visibility clothing, tent and parachute) – Application and fibres uses in Sports wear	13

5	**TRANSPORTATION TEXTILES** Introduction – Fibre requirement and applications seat belts, Air bags, seat cover. Applications, Fibres and Yarns used Conveyor and Transmission belt. Fibres and Yarns used in Tyre cods fabrics. Fibre and yarns used in industrial hoses, Textiles in car, Train, air craft and marine applications.	13

TEXT BOOKS:

S.NO	TITLE	AUTHOR	PUBLISHERS	YEAR
1	Fiber materials for Advanced Technical Textile	T. Matsuo	CRC publication,	2008
2	Industrial Application of Textiles for Filtration and coated fabrics	Pushpa B., and Sengupta, A.K	Textile progress, Vol.14,	1992

REFERENCE BOOKS:

S.NO	TITLE	AUTHOR	PUBLISHERS	YEAR
1	Hand book of Technical Textiles	A R Horrocks and S C Anand	The Textile Institute, Manchester, U.K., , Woodhead Publishing limited, Cambridge England.	2000
2	Handbook of Industrial Textiles	Sabit Adanur, Wellington sears	Technomic publishing company, Inc, Lancaster, U.S.A. ISBN:1-56676-340-1,	1995.
3	Geotextiles	N..M John	Blackie, London, ISBN: 0-216-91995-9,	1987
4	Medical Textiles	S. Anand	Text. Inst., , ISBN: 185573317X	1996

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DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

III YEAR

M- SCHEME

V SEMESTER

2015 – 2016 onwards

TEXTILE TESTING PRACTICAL

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36055
Semester	:	V Semester
Subject Title	:	TEXTILE TESTING – PRACTICAL

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
TEXTILE TESTING – PRACTICAL	5 Hrs	75 Hrs	25	75	100	3 Hrs

Rationale:

- To enhance the practical knowledge of testing textile fibre, yarn and fabric and analyzing the data.
- To handle the various testing instruments for fibre, yarn and fabric.

Objectives

- To understand the working of various textile testing (fibre, yarn and fabric) instruments.

Fibre testing

- To have practical knowledge in the textile testing areas.
- Determination of fibre length using Baer Sorter.
- Determination of trash content by Trash Analyser.
- Determination of fibre fineness by Sheffield Micronaire.

Yarn Testing

- Determination of count by cutting and weighing method.
- Determination of single yarn twist by tension type twist tester.
- Determination of ply yarn twist by take up twist tester.
- Determination of single yarn strength.
- Determination of Lea strength and CSP.
- Determination of yarn appearance grade as per ASTM visual examination method.

Fabric testing

- Determination of fabric tensile strength by tensile strength tester
- (Warp way & Weft way).
- Determination of fabric tearing strength (Warp way & Weft way).
- Determination of bending modulus by stiffness tester for given sample of
- fabric (Warp way & Weft way).
- Estimation of bursting strength of a given fabric.
- Determination of crease recovery angle in warp way & weft way.

Guidelines:

- All the 12 experiments given in the list of experiments should be completed and given for the end semester practical examination.
- In order to develop best skills in handling instruments / equipments and taking readings in the practical classes, every two students should be provided with a separate equipment set up for doing experiments in the laboratory.
- The external examiners are requested to ensure that a single experimental question should not be given to more than four students while admitting a batch of 30 students during Board Examinations.

QUESTION PAPER PATTERN & ALLOCATION OF MARKS

Single experiment is to be given per student

Experiment	50 marks
Write up / diagram / calculations	20 marks
Viva	05 marks
Total	75 Marks

LIST OF EXPERIMENTS

1. Determination of fibre length using Baer Sorter.
2. Determination of fibre fineness by Micronaire.
3. Determination of hank of roving , count of yarn by cutting and weighing method.
4. Determination of single yarn twist by tension type twist tester.
5. Determination of ply yarn twist.
6. Determination of single yarn strength, Lea strength and CSP.
7. Determination of yarn appearance grade as per ASTM visual examination method.
8. Determination of fabric tensile strength by tensile strength tester (Warp way & Weft way).
9. Determination of fabric tearing strength (Warp way & Weft way).
10. Determination of fabric stiffness by stiffness tester (Warp way & Weft way).
11. Determination of crease recovery angle in warp way & weft way
12. Determination of crimp in warp & weft yarn for the given fabric sample.

List of equipment:

Baer Sorter, Fibre fineness tester, Tension type Twist tester, Lea strength tester, Yarn appearance winder, Fabric tensile strength tester, Elmendorf tearing strength tester, Ballistic tester, Fabric thickness tester, Quadrant balance, Crease recovery tester and Stiffness tester – each 1 no, physical balance – 2no.

Material required: - For a batch of 30 students.

1. Cotton fibre - 2.0 Kgs
2. Roving bobbin - 5 bobbins
3. Yarn - 100 cops any count
4. Fabric - 30 metres

Manual: Laboratory manual.

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DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

III YEAR

M- SCHEME

V SEMESTER

2015 – 2016 onwards

TEXTILE WET PROCESSING PRACTICAL

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36056
Semester	:	V Semester
Subject Title	:	TEXTILE WET PROCESSING - PRACTICAL

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
TEXTILE WET PROCESSING - PRACTICAL	5 Hrs	75 Hrs	25	75	100	3 Hrs

Rationale:

To get knowledge on the method of preparing the dye liquor to printing paste and dyeing and printing the yarn/ fabric. To know the different finishing treatment given to dyed fabric

OBJECTIVES:

- To get knowledge on the method of analyzing the blended yarn / fabric.
- To get the practical experience in preparing the liquor for the complete Wet processing treatments.
- To get the practical experience in preparing the print paste and printing the fabric.
- To know the different finishing treatments given to the dyed fabric, depending on their end use.
- To know the different testing methods, to assess fastness of dyes to washing & rubbing.

Guidelines

- : All the 12 experiments given in the list of experiments should be completed and given for the end semester practical examination.
- In order to develop best skills in handling instruments / equipment and taking readings in the practical classes, every two students should be provided with a separate equipment set up for doing experiments in the laboratory.
- The external examiners are requested to ensure that a single experimental question should not be given to more than four students while admitting a batch of 30 students durong Board Examinations.

QUESTION PAPER PATTERN & ALLOCATION OF MARKS

Single experiment is to be given per student

Experiment	50 marks
Write up / diagram / calculations	20 marks
Viva - Voce	05 marks
Total	75 Marks

LIST OF EXPERIMENTS

1. Desizing of fabric using enzyme.
2. Scouring of yarn / fabric.
3. Bleaching of yarn / fabric using Hydrogen Peroxide.
4. Dyeing of cotton material with vat dyes.
5. Dyeing of cotton material with Bi-Functional reactive dyes.
6. Dyeing of polyester material with disperse dye.
7. Dyeing of wool with acid dye.
8. Dyeing of silk with basic dyes.
9. Printing of cotton fabric with reactive dye in direct style.
10. Direct style of printing on cotton using Pigment.
11. Finishing of cotton fabric with starch.
12. Testing of colour fastness of dyed textile materials to washing & rubbing.

No. of students : 30

No. of students / Batch : 03

Total No. of batches : 10

LIST OF EQUIPMENTS REQUIRED: For a Batch of 30 Students

01.	Dye bath for dyeing, desizing, scouring, bleaching	- 05 Nos.
02.	Crockmeter for rubbing fastness testing	- 01 Nos.
03.	Launderometer for washing fastness testing	- 01 Nos.
04.	Printing table	- 01 Nos.
05.	Printing Screens	- 02 Nos.
06.	Padding Mangle	- 01 Nos.

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

III YEAR

M- SCHEME

V SEMESTER

2015 – 2016 onwards

LIFE AND EMPOLYABILITY SKILL PRACTICAL

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

DIPLOMA IN ENGINEERING – SYLLABUS – M Scheme

(Being implemented from the Academic Year 2016-2017 onwards)

Course Name : **All Branches of Diploma in Engineering and Technology and Special Programmes**

Subject Code : **30002**

Semester : **V**

Subject Title : **LIFE AND EMPLOYABILITY SKILLS PRACTICAL**

Teaching and Scheme of Examination: **No. of Weeks per Semester: 15 Weeks**

Subject	Instruction		Examination			
			Marks			
	Hours/ Week	Hours/ Semester	Internal assessment	Board Examination	Total	Duration
Life and Employability Skills	4 Hours	60 Hours	25	75	100	3 Hours

Topics and Allocation of Hours:

Sl. No.	Section	No. of Hours
1	**Part – A** Communication	**30**
2	**Part – B** Entrepreneurship, Project Preparation, Productivity,	**20**

	Occupational Safety, Health, Hazard, Quality Tools& Labour Welfare	
3	**Part – C** Environment, Global Warming, Pollution	**10**
TOTAL		**60**

RATIONALE

Against the backdrop of the needs of the Industries, as wells as based on fulfilling the expectations of the Industries, the Diploma Level students have to be trained directly and indirectly in toning up their competency levels. Proficiency in Communication only, equips them with confidence and capacity to cope with the employment. Hence, there is a necessity to focus on these in the curriculum. At the end of the Course, the student is better equipped to express himself in oral and written communication effectively.

SPECIFIC INSTRUCTIONAL OBJECTIVES

1. Emphasize and Enhance Speaking Skills

2. Increase Ability to Express Views & Opinions

3. Develop and Enhance Employability Skills

4. Induce Entrepreneurship and Plan for the Future

5. Expose & Induce Life Skills for Effective Managerial Ability

LIFE AND EMPLOYABILITY SKILLS PRACTICAL

SYLLABUS

Unit	Topics	Activity	Hours
I	**Communication, Listening, Training, Facing Interviews, Behavioural Skills**	-- instant sentence making – say expressions/phrases-- self- introduction/another higher official in company – describe/explain product – frame questions based on patterns – make sentences based on patterns	**30**
II	**Entrepreneurship, Project Preparation, Marketing Analysis, Support & Procurement**	-- prepare an outline of a project to obtain loan from bank in becoming an entrepreneur – prepare a resume	**10**
III	**Productivity – comparison with developed countries, Quality Tools, Circles, Consciousness, Management, House Keeping**	-- search in the website -- prepare a presentation – discuss & interact	**05**
IV	**Occupational Safety, Health Hazard, Accident & Safety, First-Aid,Labour Welfare Legislation, Welfare Acts**	-- search in the website -- prepare a presentation – discuss & interact	**05**

V	**Environment, Global Warming, Pollution**	-- taking down notes / hints – answering questions -- fill in blanks the exact words heard	**10**

LEARNING STRUCTURE **100 Marks**

-- Focus more on Speaking & Listening Skills
-- Attention less on Reading & Writing Skills
-- Apply the skills in fulfilling the Objectives on Focused Topics

a) Listening **25 Marks**

1. Deductive Reasoning Skills (taking down notes/hints) **10**
2. Cognitive Skills (answering questions) **10**
3. Retention Skills (filling in blanks with exact words heard) **05**

b) Speaking Extempore/ Prepared **30 Marks**

1. Personality/Psychological Skills (instant sentence making) **05**
2. Pleasing & Amiable Skills (say in phrases/expressions) **05**
3. Assertive Skills (introducing oneself/others) **05**
4. Expressive Skills (describe/explain things) **05**
5. Fluency/Compatibility Skills (dialogue) **05**
6. Leadership/Team Spirit Skills (group discussion) **05**

c) Writing & Reading **20 Marks**

1. Creative & Reasoning Skills (frame questions on patterns) **05**
2. Creative & Composing Skills (make sentences on patterns) **05**
3. Attitude & Aim Skills (prepare resume) **05**
4. Entrepreneurship Skills (prepare outline of a project) **05**

d) Continuous Assessment (Internal Marks) **25 Marks**

(search,read, write down, speak, listen, interact & discuss)

1. Cognitive Skills (Google search on focused topics)
2. Presentation Skills& Interactive Skills (after listening, discuss)

Note down and present in the Record Note on any 5 topics **10 Marks**
Other activities recorded in the Record note **10 Marks**
Attendance **05 Marks**

INTERNAL MARKS **25 MARKS**

EXTERNAL MARKS AT END EXAMINATION **75 MARKS**

MODEL QUESTION

Time: 3 Hours **Maximum Marks: 75**

A. LISTENING **25 Marks**

1. Listen to the content and take down notes/hints 10
2. Listen to the content and answer the following questions. 10
3. Listen to the content and fill in the blanks the exact words heard. 05

B. SPEAKING **30 Marks**

1. Say in a sentence instantly on hearing the word(5 words, one after another). 05
2. Say any five expressions commonly used in communication. 05
3. Imagine, a consultant has come to your department.
   Introduce him to your subordinates. 05
4. Explain/describe the product you are about to launch in the market. 05
5. Speak with your immediate boss about the progress you have made. 05
6. Discuss within the group on the topic of focus in the syllabus. 05

C. WRITING & READING **20 Marks**

1. Frame new questions from the pattern given by changing sets of words with your own. 05

a.	When	do	you	return?
b.	How	is	his performance?	
c.	Where	has	the manager	gone?
d.	What	is	the progress	today?
e.	Why	are	the machines	not functioning?

2. Make sentences from the pattern given by changing sets of words with your own. 05

a.	The workers	are	on strike		
b.	The labourers	are paid	well	in this factory	
c.	There	is	a rest room	for the workers	

d.	These	are	the new products	launched	by our company
e.	Almost everyone	come	to the company	on motorbikes	

3. Prepare a resume for the post of Department Manager. 05

4. Prepare an outline of a project to obtain a loan. (Provide headings and subheadings) 05

I. Guidelines for setting the question paper:

A. LISTENING :

ONLY TOPICS related to
POLLUTION /
ENVIRONMENT /
GLOBAL WARMING are to be taken.
These topics are common for all the three types of evaluation.

B. SPEAKING :

1. WORDS of common usage
2. Fragments – expression of politeness, courtesy, cordiality
3. Introduce yourself as an engineer with designation or
   Introduce the official visiting your company/department

4. Describe/Explain the product/machine/department
5. Dialogue must be with someone in the place of work.
6. Group of six/eight
   Discuss the focused topic prescribed in syllabus

C. WRITING & READING:

1. Provide five different structures.
   Students are to substitute at least one with some other word/words
2. Provide five different structures.
   Students are to substitute at least one with some other word/words
3. Provide some post related to industries.
4. Outline of the project (skeleton/structure)
   Only the various headings and subheadings
   Content is not needed

II. Guidelines for recording the material on the Focused Topics in the Record note.

Write in the record note, **on any five topics**, from the list of topics given below. **10 Marks**
(5 topics x 10 marks = 50 marks. Thus, the **Average of 5 topics is 10 Marks)**

1. Productivity in Industries – Comparison with developed countries
2. Quality Tools, Quality Circles and Quality Consciousness
3. Effective Management
4. House Keeping in Industries
5. Occupational Safety and Hazard
6. Occupational Accident and First Aid
7. Labour Welfare Legislations
8. Labour Welfare Acts and Rights
9. Entrepreneurship
10. Marketing Analysis, Support and Procurement

LABORATORY REQUIREMENT:

1. An echo-free room
2. Necessary furniture and comfortable chairs
3. A minimum of two Computers with internet access
4.A minimum of two different English dailies
5. A minimum of Three Mikes with and without cords
6. Colour Television (minimum size – 29")
7. DVD/VCD Player with Home Theatre speakers
8. Smart board
9. Projector

Suggested Reading:

1. Production and Operations Management by S.N. Chary, TMH
2. Essentials of Management by Koontz &Weihrich, TMH
3. Modern Production / Operations Management by E.S. Buffa and R.K. Sarin, John Wiley & Sons
4. Production Systems: Planning, Analysis and Control by J.L.Riggs, 3rd ed., Wiley.
5. Productions and Operations Management by A.Muhlemann, J.Oakland and K.Lockyer, Macmillan
6. Operations Research - An Introduction by H.A.Taha, Prentice Hall of India
7. Operations Research by J.K.Sharma, Macmillan
8. Business Correspondence & Report Writing by R.C. Sharma and K.Mohan, TMH
9. How to prepare for Group Discussion & Interview (With Audio Cassette) by Prasad, TMH
10. Spoken English – A self-learning guide to conversation practice (with Cassette)
11. Introduction to Environmental Engineering by Mackenzie, L. Davis and A. David, Cornwell, McgrawHill, 3rd Ed.
12. Environmental Engineering by Peary, Rowe and Tchobanoglous, McgrawHill
13. Total Quality Management – An Introductory Text by Paul James, Prentice Hall
14. Quality Control and Applications by Housen&Ghose
15. Industrial Engineering Management by O.P. Khanna

VI SEMESTER

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

III YEAR

M- SCHEME

VI SEMESTER

2015 – 2016 onwards

TEXTILE MANAGEMENT

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36061
Semester	:	VI Semester
Subject Title	:	TEXTILE MANAGEMENT

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
TEXTILE MANAGEMENT	5 Hrs	75Hrs	25	75	100	3 Hrs

Topics and allocation

Sl. No	Topic	Time (hrs.)
1	INTRODUCTION TO MANAGEMENT, SITE SELECTION, PLANT LAY OUTS	14
2	PRODUCTION AND FINANCIAL MANAGEMENT	14
3	HUMAN RESOURCE MANAGEMENT	14
4	SUPERVISORY AND SAFETY MANAGEMENT	13
5	EXPORT AND CONTEMPORARY MANAGEMENT	13
6	TEST & REVISION	07
Total		75

RATIONALE

To study the fundamental concept in personal management, production management and export marketing management.

To enhance the knowledge for the supervisory job in textile mills, their authority and responsibility will be taught to the students.

To improve the knowledge in inventory control in stores and also financial management techniques will be taught to the students.

Objectives

- To know about the fundamentals of management and the various functions of personnel management.
- To have knowledge about components and systems of wage payment.
- To know about the various labour welfare activities in a textile mill.
- To know about the layouts and industrial buildings, factors influencing selection of site.
- To know about productivity, labour and machine productivity and the factors affecting them.
- To know about the role of supervisor in a textile unit, causes and precautions and prevention of industrial accidents and safety devices used in textile mills..
- To know about inventory control and the methods adopted, material handling in textile mills.
- To know about financial management, cost and its components, calculation of Ex mill price and break even analysis.
- To know about export policy of India, export promoting agencies and their functions, export order processing and export pricing methods.

36061 TEXTILE MANAGEMENT

DETAILED SYLLABUS

Content : Theory

S.No.	Topic	Time
1	**INTRODUCTION TO MANAGEMENT, SITE SELECTION, PLANT LAY OUTS** Definition of Management. Functions of management – Organising, Staffing, Directing, and Controlling. Organisation structure-line, staff, line and staff, committee organisation. Selection of site-advantage and disadvantages and various factors of site selection for various textile industries. Importance and types industrial buildings, lightings, ventilations and humidification. Control of air, water and land pollution in textile industry. Plant layout-process, product, combined and fixed layouts-their merits and demerits. Type of layout suitable for spinning, weaving, textile processing and garment industries	14
2	**PRODUCTION AND FINANCIAL MANAGEMENT** Factors affecting production. Productivity- Factors affecting productivity. Labour productivity and machine productivity. Work Study–Method Study and Work Measurement. Procedures of method study and work measurement. Importance of Material handling and various machineries of it in textile industry. Production Planning and Control (PPC) – Functions of PP&C. Inventory control - Economic Order Quantity (EOQ), ABC and VED Analysis. Financial Management – Capital Cost and Working Capital - Sources of Finance. Elements of Cost - Method of calculating Ex Mill Price. Break even analysis. Depreciation. Enterprise Resource Planning (ERP)	14
3	**HUMAN RESOURCE MANAGEMENT** Importance of Human Resource management in an industry. Man power planning –Definition of job analysis and job description – methods of job description and job analysis. Recruitment – Sources, merits and demerits. Selection process in recruitment. Training of Employees – advantages	14

	and types of training. Wages and its Components-Basic pay, DA, HRA, bonus, incentive. Method of wage payment- time rate, piece rate, combination of time and piece rate. Incentives – types and their merits and demerits. Labour Welfare activities – Role of Labour Welfare Officer. Labour grievances - causes and effects of grievances. Grievance handling procedures. Grievance handling mechanisms	
4	**SUPERVISORY AND SAFETY MANAGEMENT** Define Supervision-Role of supervisor, characteristics of effective supervision. Role and characteristics of leadership. Difference between leader and manager. Motivation- need, importance and types of motivation-Maslow's theory, XYZ theory in motivation. Communication- Principle of effective communication - types of communication - barriers of communication. Labour welfare activities with respect to factories act. Industrial safety- Causes for accidents, preventive measures. Guards and safety devices in textile mill. Types of fire and fire prevention. Application of 5 S and Kaizen principles for effective supervision.	13
5	**EXPORT AND CONTEMPORARY MANAGEMENT** Importance and benefits of international marketing. World Trade Organisaiton (WTO) – functions of WTO. Various export promotion measures by government of India. Functions of TEXPROCIL, AEPC, PEDEXIL, HEPC, Textile committee, Textile commissioner's office. Export procedure-receipt of confirmed order-export production-export documentation - Export incentives. Importance of Shipping bill and bill of lading. Export finance –pre shipment finance and post shipment finance. Letter of Credit. Export price composition. Export pricing-Ex factory, Free Along Side (FAS), Free On Board (FOB), Cost Insurance Freight (CIF) and Franco pricing. Management Information System (MIS),Just In Time (JIT),Total Quality Management (TQM),,	13

TEXT BOOKS:

S.NO	*TITLE*	*AUTHOR*	*PUBLISHERS*	*YEAR*
1	Principles Of Management	P.C.Tripathi	Tata Mcgrow Publishing Compny Ltd,New Delhi	2001
2	Management Of Textiles	Dudega.V.D	Trade Press, Textile Indistry ,Ahemadabad	1981

REFERENCE BOOKS:

S.NO	TITLE	AUTHOR	PUBLISHERS
1	Principles Of Management	P.C.Tripathi	Tata Mcgrow Publishing Compny Ltd, New Delhi
2	Management Of Textiles	Dudega.V.D	Trade Press, Textile Indistry ,Ahemadabad
3	Industrial Engineering	A P Verma	S K Kataria.
4	Personnel Management Of Humoun Resoures	Mamoria.C.B	Himalaya Pubishingh House, Mumbai
5	Organisation Theory & Behaviour	Luthans.F	Printece Hall Of India
6	Management Of Textile	Ormerod.A	Butter Worth &Company
7	Industrial Eng. & Management Science	Bauga.T.R;Etal	Khanna PublisherNew Delhi
8	Business Management Theory	Singa. J.C & Mugali.V.N	R.Chand & Co, New Delhi
9	Costing In Textile Mills	SITRA	SITRA, Coimbatore
10	Export Management	T A S	Himalaya Pubishingh

		Balagopal	House, Mumbai
11	Industrial Organisation and Engineering Economics	S C Sharma, T R Banga	Khanna PublisherNew Delhi

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

III YEAR

M- SCHEME

VI SEMESTER

2015 – 2016 onwards

GARMENT MANUFACTURE

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36062
Semester	:	VI Semester
Subject Title	:	GARMENT MANUFACTURE

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
GARMENT MANUFACTURE	5 Hrs	75Hrs	25	75	100	3 Hrs

Topics and allocation

Sl. No	Topic	Time (hrs.)
1	MEASUREMENTS, PATTERNS AND TOOLS FOR GARMENT CONSTRUCTION	14
2	DRAFTING AND PATTERN LAYOUT	14
3	CUTTING AND GARMENT CONSTRUCTION	14
4	PACKING AND QUALITY REQUIREMENTS	13
5	FASHION DESIGN	13
6	TEST & REVISION	07
Total		75

RATIONALE:

To understand the Textile industry and the market, an effort is made to equate the products' features with the requirement of the Markets. In order to achieve this objectives a broad sweep various subjects in the entire textile spectrum is elaboratedto the level of the diploma students..

OBJECTIVES:

1. To know about human anatomy, pattern making and garment making tools
2. To understand pattern layout & cutting
3. To familiarize with sewing, embroidery & clothing construction
4. To know about pressing, packing & quality control
5. To understand fashion design concept

36062 GARMENT MANUFACTURE

DETAILED SYLLABUS

Contents: Theory

Unit	Name of the Topic	Hours
1	**MEASUREMENTS, PATTERNS AND TOOLS FOR GARMENT CONSTRUCTION** Flow chart for garment manufacturing process in garment industry. Eight head theory of human anatomy and its uses. Measurements – importance, Measurements to be taken for children's, Ladies, and Gent's wear. Paper patterns - importance – Types - Commercial patterns and personal patterns - Principles of pattern drafting –Principles of Pattern grading. Tools required for garment making – Measuring tools, Cutting tools - Pattern making tools - Pressing tools.	14
2.	**DRAFTING AND PATTERN LAYOUT** Pattern making of 'A' line frock - Ladies skirt - Gent's half sleeve shirt - Ladies nightwear. Fabrics used in garment manufacture – Plain, Striped, Plaid, Printed and one way. Rules for pattern layout – types of Layout (length wise Cross wise, partial length wise, partial cross wise, combined fold and open layout). Special layouts for asymmetrical, striped, checked and one way designs – Types of Lay. Lay length and Marker planning.	14
3	**CUTTING AND GARMENT CONSTRUCTION** Objects of spreading & cutting - Importance of cutting - Brief study on types of cutting machines – Straight knife - Band knife - Round knife -LASER cutting. Cutting defects. Sewing Machine Parts and its function. Stitches – Brief study of Lock stitch, Chain stitch, 3 threads over lock, 5 thread flat lock. Brief study of different types of Seams – Plain, bound flat & Slot seam. Construction of 'A' line frock, Ladies skirt, Gent's half sleeve shirt and Ladies nightwear.	14

4	**PACKING AND QUALITY REQUIREMENTS** Types of pressing and its objects. Packing materials, Different methods of Packing. Assortment pack - Ratio pack, Colour wise pack, Size wise pack. Methods of fabric inspection - Study of 4 point and 10 point system. Types of Inspection – Raw Material Inspection - Quality requirements for sewing thread, zippers, linings and buttons – Brief study of in process inspection and Final inspection. Brief study of Garment defects. Accepted Quality Level (AQL) – Sampling size and levels. Acquiring ISO certification for the Garment Industry. Objects of Organic cotton certification and GOTS	13
5	**FASHION DESIGNING** Elements of Design – Line, Shape, Texture, Colour and Value. Principles of Design – Balance, Proportion, Emphasis, Rhythms and Harmony. Pigment theory of colours – Primary, Secondary and Tertiary colours. Color dimension (Hue, Intensity, Value, Tint, Shade and Tone) - Warm and Cool Colors. Design – Different types of structural designs and decorative designs on dress. Basic concepts of Fashion show.	13

TEXT BOOKS:

S.NO	Author	Title	Publisher	Edition	Year
1	Carr and Lathem	The Technology of Clothing Manufacture	Blackwell Publication Oxford UK	2nd Indian Reprint	2004
2	Gerry Cooklin	Introduction to Clothing Manufacture	Blackwell Publication Oxford UK	2nd Indian Reprint	2005
3	Pradip V.Metha & Satish.K. Bharadwaj	Managing Quality in the Apparel Industry	New Age International Publishing, New Delhi	1st Edition Reprint	2006

REFERENCE BOOKS:

S.NO	Author	Title	Publisher	Edition	Year
1	Anna Jacob Thomas	The Art of Sewing	UBS Publishers, New Delhi	6th Reprint	2001
2	Mary Mathews	Practical clothing constructions Part I & II	Paprinpack Printers, Chennai	Ist Edition	1985
3	Erwine Mabel.D	Clothing for Moderns	Macmillan Pub. Co., New York.	Ist Edition	1979
4	Virgin Stolpe Lewis	Comparative clothing construction Techniques	Surjeet Publications, Delhi	Ist Edition	1984

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

III YEAR

M- SCHEME

VI SEMESTER

2015 – 2016 onwards

ELECTIVE - II

MAINTENANCE OF TEXTILE MACHINERY

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36081
Semester	:	VI Semester
Subject Title	:	ELECTIVES –II MAINTENANCE OF TEXTILE MACHINERY

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
ELECTIVES –II MAINTENANCE OF TEXTILE MACHINERY	5 Hrs	75Hrs	25	75	100	3 Hrs

Topics and allocation

Sl. No	Topic	Time (hrs.)
1	Basic of Maintenance - planning, Scheduling and Controlling	14
2	Store control, Assessment of Maintenance, Application of New Concepts	14
3	Gauges and Tools, vibration and Levelling	14
4	Maintenance Of Spinning Machineries	13
5	Maintenance Of Weaving Knitting and Sewing Machines	13
6	TEST & REVISION	07
Total		75

RATIONALE

To study the fundamental concept in basics of maintenance, store control & maintenance of spinning and weaving machineries.

To enhance the knowledge for the maintenance supervisory job in textile mills, their authority and responsibility will be taught to the students.

To improve the knowledge in inventory control in stores and also maintenance cost will be taught to the students.

Objectives

- To know about the basics of maintenance
- To understand about planning, scheduling and controlling.
- To have knowledge about stores and inventory control.
- To know about the tools and gauges used in Textile industry.
- To understand the balancing of machines.
- To gain knowledge in routine and preventive maintenance of spinning machines.
- To acquire knowledge about lubrication of spinning preparatory machines.
- To understand the routine and preventive maintenance of Weaving machines.
- To understand the routine and preventive maintenance of knitting and sewing machines.

ELECTIVE – II 36081 MAINTENANCE OF TEXTILE MACHINERY

DETAILED SYLLABUS

Content : Theory

Sl.No.	Name of Topic	Time
1	**Basics of Maintenance - Planning, Scheduling and Controlling** Objectives of Maintenance. - Basics requirements for good maintenance, Different types of Maintenance- Planned and break down maintenance. Scope and their suitability. **Maintenance Planning**. Fundamentals of planning-Duration, frequency, list of activities. Factors involved in Maintenance planning - Equipment history record, recommendation of machinery manufacturer and experts, Yearly maintenance programme. **Maintenance Scheduling** – Yearly maintenance plan, weekly work order, Rescheduling of maintenance. **Maintenance Control** - Objective. Records for effective control - machine card, emergency work order, monthly computations of spares and lubrication record, maintenance ledger, OT register, accident register. Duties and responsibilities of maintenance supervisor.	14
2	**Store control, Assessment of Maintenance, Application of New Concepts** Stores – definition of store. Requirements for good store control. Bin card - Importance and Advantages of bin card. ABC analysis. Records maintained in stores - indent on store, material refund note, store ledger. Duties and responsibilities of a store keeper. Importance of coordination of production, quality and maintenance departments in textile mills. Assessment of existing maintenance-objectives-machine availability %, Maintenance cost %, labour performance index, machine performance. Delay analysis and maintenance audit. Housekeeping and 5S work practice. Concepts of Total Productive Maintenance(TPM) & Selective Maintenance Program(SMP).	14

3	**Gauges and Tools, Vibration and Levelling** **Gauges and Tools**- Brief study of various gauges used in textile industry for Maintenance-leaf gauge, Techo meter, Dial gauge, shore hardness tester, Top roller cot diameter checking gauge, , Top Arm Roller Pressure (TARP) checking gauge, AITRA pneumafil suction presser checking gauge, Bottom roller setting gauge, Card wire inspection microscope. Special lubricating equipment for spindle oil topping, flushing and replenishing (lubristor). **Vibration** - Causes of vibration - Effects of vibration - Measurement of vibration - Shirley roller vibration detector- brief study of stroboscope. **Levelling**- Purpose of levelling. Various levelling instruments- Static and dynamic balancing of card cylinder.	14
4	**Maintenance of Spinning Machineries** Metallic Card wire clothing-Procedure and equipment used for card clothing. Card grinding - importance of grinding – procedure and equipment used for grinding. Cots buffing- importance of cots buffing - procedure and equipment used- Berkoloation. Roller eccentricity- causes of roller eccentricity. Spindle and lappet gauging – importance and procedure. **Routine and Preventive maintenance** - Maintenance program for Blow room, Carding, Draw frame, Comber, Simplex, Spinning frame. Maintenance of spinning machineries during strike and lock out periods. Erection procedure for carding machine, simplex, and ring frame	13
5	**Maintenance of Weaving ,Knitting And Sewing Machines** Routine and Preventive maintenance - Maintenance program for winding -warping - pirn winding – sizing machines. Maintenance program for plain, automatic looms. **Maintenance of loom parts** - Care and maintenance of heald, reed, shuttle, picker. Conversion of plain looms to semi automatic looms. Step by step procedure for loom erection. Maintenance of weaving preparatory machines and looms during strike and lay off periods. Maintenance of knitting and simple sewing machines. Maintenance of humidification plant and air compressor.	13

TEXT BOOKS :

S.NO	TITLE	AUTHOR	PUBLISHERS	YEAR
1	Maintenance Management in Spinning	T.V.Rathinam K.P.Chellamani	SITRA Coimbatore	2004
2	Maintenance in Ring Spinning	AT.Shahani, B.P.Todankar, C.K.Mistry and N.Balasubramanian	BTRA Publications, LBS marg Ghatkoper, Bombay – 86	1979

REFERENCE BOOKS:

S.NO	TITLE	AUTHOR	PUBLISHERS	YEAR
1	Maintenance of Textile Machinery (Spinning, Weaving and Processing)	---	TAIRO publication Baroda	1970
2	Norms for Mechanical Processing	---	BTRA Bombay – 86	1979
3	Repair and Adjustment of Textile Machineries	T.Granovsky	MIR publisher Moscow	1984
4	Maintenance Schedules, Practice and Check Points in Spinning	---	BTRA Bombay	1979
5	Contemporary Textile Engineering	Prof. F. Happy	University of Bradford Academic press 24/28 Oval road London LW 1	1984
6	Process Control in Spinning	A.R.Grade	ATIRA	1987

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY / DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

III YEAR

M- SCHEME

VI SEMESTER

2015 – 2016 onwards

ELECTIVE - II

PROCESS CONTROL IN SPINNING

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY

Subject Code : 36082

Semester : VI Semester

Subject Title : ELECTIVES –II PROCESS CONTROL IN SPINNING

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
PROCESS CONTROL IN SPINNING	5 Hrs	75Hrs	25	75	100	3 Hrs

Topics and allocation

Sl. No	Topic	Time (hrs.)
1	**Process control in Fibre Mixing**	**14**
2	**Process control in Blowroom, Carding and Comber**	**14**
3	**Process control in spinning**	**14**
4	**Control of yarn quality- Count and strength**	**13**
5	**Control of yarn quality – Unevenness and imperfection**	**13**
6	**TEST & REVISION**	**07**
Total		**75**

RATIONALE

This subject covers the process control in fibre mixing, blowroom, carding and spinning. This subject helps to find out the control of the yarn qualities which are mostly used in spinning mills. By studying this subject student will become as a quality control officer. This subject covers how to control all the spinning process.

Objectives

- To know about the process control in fibre mixing.
- To understand about the process control in blowroom, carding and comber.
- To have knowledge about the process control in spinning.
- To gain knowledge in control of the yarn quality - count & strength
- To acquire knowledge about the control of the yarn quality – unevenness & imperfection.

ELECTIVE – II 36082 PROCESS CONTROL IN SPINNING

DETAILED SYLLABUS

Content : Theory

Sl.No.	Topic	Time
1	**Process control in Fibre Mixing** Role and scope of process control in spinning – key variables for process control – control of mixing quality through fibre characteristic - control of mixing cost and material quality – linear programming for cotton mix - Application of linear programming in a mill. Control of yarn realization and waste – Norms for yarn realization – Judging yarn realization of mill – Accounting of reusable soft waste.	14
2	**Process control in Blowroom, Carding and Comber** Control of waste and cleaning in blowroom and carding – determination of trash content and clearing efficiency – Norms for cleaning efficiency of individual machines in blowroom. Assessing the performance of Blow room – Optimizing cleaning at cards – control of comber waste – optimum level of comber waste. Norms of improvement in mean length on combing –Need for routing check of comber waste – procedure for control of comber waste.	14
3	**Process control in spinning** Measurement and analysis of productivity – definitions of indices of Productivity – productivity analysis – Improvement in productivity – maximizing machine efficiency in ring spinning – Reduction of end breakage in Ring frame – Renovation at Ring frame to reduce end breaks – Recording and analyzing end breakage rate - Process control measures to be adopted for Rotor spinning	14
4	**Control of yarn quality- Count and strength** Control of yarn quality – count and strength and their variability – Reducing within bobbin count variation – Control of sliver evenness – control of stretch at fly frames - reducing	13

	within and between bobbin count variation – Routine control of count – control of variability of lea strength – meeting the requirements of yarn strength – Factors affecting yarn strength – norms for lea strength – Single yarn strength and elongation	
5	**Control of yarn quality – Unevenness and imperfection** Control of yarn quality - unevenness and imperfection– measurement of unevenness – Assessment of Silver, Roving and yarn unevenness. Types of yarn irregularity – Random irregularity – Periodic irregularity – Quasi – Contributions to yarn irregularity – measurement and assessment of imperfections – causes of thick and thin places – Fibre neps – Assessment and control – Judging of yarn appearance – check list for control of yarn unevenness and thick and thin places. Yarn faults and package defects.	13

TEXT BOOK

S.NO	TITLE	AUTHOR	PUBLISHERS	YEAR
1	Process control in spinning	A. R. Grade & T.A. Subramaniam	ATIRA SILVER JUBILEE MONOGRAPGS, ATIRA – Ahamedabad Pin: 380 015	1978

REFERENCE BOOKS:

S.NO	TITLE	AUTHOR	PUBLISHERS	YEAR
1	End breaks in Ring spinning	A.R. Grade T.A. Subramaniam	ATIRA Ahamedabad – India	1974
2	Quality control in spinning	TV Ratnam K.P.chellamani	SITRA Coimbatore-641014	2005

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

III YEAR

M- SCHEME

VI SEMESTER

2015 – 2016 onwards

GARMENT MANUFACTURE PRACTICAL

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36064
Semester	:	VI Semester
Subject Title	:	GARMENT MANUFACTURE PRACTICAL

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
GARMENT MANUFACTURE PRACTICAL	5 Hrs	75Hrs	25	75	100	3 Hrs

Rationale:

The diploma students should necessarily have basic practical skills and knowledge to get their work done in their carreer in the industry and trade, where they are going to get absorbed either as technicians or administrators or entrepreneurs. This is achieved by introducing practical experiments with hands on experience in the specified subjects.

OBJECTIVES:

1. To learn the fundamentals of pattern drafting.
2. To understand the concepts of garment making.
3. To familiarize them with colour theory and fashion concepts.

GUIDELINES:

- All the 12 experiments given in the list of experiments should be completed and given for the Board Practical Examination.
- To develop best skills in handling Instruments / Equipments and taking readings in the practical classes, every batch of students should be provided with a separate experimental setup for doing experiments in the laboratory.
- The external examiners are requested to ensure that a single experimental question should not be given to more than four students while admitting a batch of 30 students during Board Practical Examinations.

LIST OF EXPERIMENTS:

Drawing

1. Drawing of Ladies high fashion dress and its decoration.

Preparing samples

2. Preparation of hand embroidery samples with running, back & chain stitches.
3. Preparation of stem and satin stitches.

Pattern Drafting

4. Preparation of pattern for Basic T-shirt.
5. Preparation of pattern for A-line frock.
6. Preparation of pattern for Ladies skirt
7. Preparation of pattern for Ladies nightwear.
8. Preparation of pattern for Gent's shirt with full sleeve.

Construction

9. Construction of A- line frock using the given paper pattern
10. Construction of ladies skirt using the given paper pattern
11. Construction of ladies nightwear using the given paper pattern
12. Construction of Gents shirt with full sleeve using the given paper pattern

QUESTION PAPER PATTERN & ALLOCATION OF MARKS

Single experiment is to be given per student

Experiment	50 marks
Write up / diagram	20 marks
Viva - Voce	05 marks
Total	75 Marks

EQUIPMENT LIST:

S.No.	Name of Equipments
1	Lock Stitch Pedal Sewing Machine – 10 Nos.
2	3-Thread Over lock – 1 No.(Ordinary M/C)
3	Steam Iron Box – 1 No.
4	Drafting & Cutting Table – 1 No.

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DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

III YEAR

M- SCHEME

VI SEMESTER

2015 – 2016 onwards

TEXTILE CAD PRACTICAL

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36065
Semester	:	VI Semester
Subject Title	:	TEXTILE CAD PRACTICAL

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
TEXTILE CAD PRACTICAL	5 Hrs	75 Hrs	25	75	100	3 Hrs

Rationale:

To enhance the practical knowledge of Textile CAD software of Jacquard, dobby, Printing and Textile Mapping, to produce simulation of given cloth samples.

Objectives:-

1. Student will be trained – To develop a designs from fabric to computer with various color combinations. Change of material, Yarn count, Reed & pick are to be made on the buyers need. Thus satisfying the buyer before going to the actual production of the fabric.

Guidelines.:

- All the 12 experiments given in the list of experiments should be completed and given for the Board Practical Examination.
- To develop best skills in handling Instruments / Equipments and taking readings in the practical classes, every batch of students should be provided with a separate experimental setup for doing experiments in the laboratory.
- The external examiners are requested to ensure that a single experimental question should not be given to more than four students while admitting a batch of 30 students during Board Practical Examinations

LIST OF EXPERIMENTS

1. Creation of Dobby stripe design using Textile CAD (or) suitable software.
2. Creation of Dobby weft bar design using Textile CAD (or) suitable software
3. Creation of Dobby checks design using Textile CAD (or) suitable software.
4. Analysis of the given Dobby stripe fabric and production of the Fabric Simulation in different Colour Combinations using Textile CAD (or) suitable software.
5. Analysis of the given Dobby check fabric and production of the fabric simulation in different Colour Combinations using Textile CAD (or) suitable software.
6. Creation of a Dobby check design for shirting with different weaves and colours using Textile CAD (or) suitable software.
7. Creation of calculation sheet for a Dobby design fabric for costing per square meter of fabric using Textile CAD (or) suitable software.
8. Creation of a Jacquard design fabric simulation using Textile CAD (or) suitable software with suitable commands.
9. Analysis of a Jacquard design fabric and production of the fabric simulation in different Colour Combinations using Textile CAD (or) suitable software.
10. Creation of printed design with 6 colours, and its separation, using Textile CAD (or) suitable software.
11. Production of Texture mapping on various objects and models with new Dobby designs created using Textile CAD (or) suitable software.
12. Production of Texture mapping on various objects and models with new Printed designs created using Textile CAD (or) suitable software.

QUESTION PAPER PATTERN & ALLOCATION OF MARKS

Single experiment is to be given per student

Experiment	50 marks
Write up / diagram	20 marks
Viva - Voce	05 marks
Total	75 Marks

List of equipment : 15 no. Personal computers. (Pentium IV – 512 MB RAM)
Textile CAD software, Scanner & printer. / LAN connected.

Material : Jacquard, Dobby and printed sample cloths.

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DIPLOMA IN TEXTILE TECHNOLOGY / DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

III YEAR

M- SCHEME

VI SEMESTER

2015 – 2016 onwards

GARMENT CAD PRACTICAL

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36066
Semester	:	VI Semester
Subject Title	:	GARMENT CAD PRACTICAL

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
GARMENT CAD PRACTICAL	4 Hrs	60 Hrs	25	75	100	3 Hrs

Rationale:

To enhance the practical knowledge to draft a pattern using computer. Also to understand the pattern grading, industrial pattern drafting system, concept of computer colour matching.

Objectives:-

1. To know the application of drafting procedure through computer.
2. To understand the industrial pattern drafting system and application.
3. To know the pattern grading application through computer.
4. To under stand concept of computer colour matching.
5. To learn procedure to measure the efficiency of bleached material in terms of various indices.
6. To acquire knowledge in measuring the important parameter of colour difference.

Guidelines:-

- All the 12 experiments given in the list of experiments should be completed and given for the Board Practical Examination.
- To develop best skills in handling Instruments / Equipments and taking readings in the practical classes, every batch of students should be provided with a separate experimental setup for doing experiments in the laboratory.
- The external examiners are requested to ensure that a single experimental question should not be given to more than four students while admitting a batch of 30 students during Board Practical Examinations

LIST OF EXPERIMENTS

1. Designing for a ladies night wear and colouring suitably.
2. Designing for a fashion kids wear and colouring with contrast colour scheme
3. Designing for a T-Shirt and colouring with suitable tint.
4. Designing for a ladies skirt with suitable colour combination
5. Drafting a pattern for Ladies T- shirt.
6. Drafting a pattern for Ladies Night wear.
7. Drafting a pattern for Full sleeve for Gents shirt with collar
8. Grading the given A Line frock front style to its lower and higher grades.
9. Grading the Full sleeve to its lower and higher grades and laying the pieces using pattern design system.
10. Grading the parts of the Ladies “T” shirt to its higher grade and laying the pieces using pattern design system.
11. Grading the given trouser pattern to its lower and higher grades and laying the pieces using pattern design system.
12. Drawing a fashion Top garment for Gents using suitable drawing software and colouring as per scheme.

QUESTION PAPER PATTERN & ALLOCATION OF MARKS

Single experiment is to be given per student

Experiment	50 marks
Write up / diagram	20 marks
Viva - Voce	05 marks
Total	75 Marks

List of equipment : 10 Numbers of Personal computers.
Scanner & printer. / LAN connected.
Garment CAD software and Paint / Coral draw / Photoshop Software’s.

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DIPLOMA IN TEXTILE TECHNOLOGY /
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

III YEAR

M- SCHEME

VI SEMESTER

2015 – 2016 onwards

PROJECT WORK

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY
Subject Code	:	36067
Semester	:	VI Semester
Subject Title	:	PROJECT WORK

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
PROJECT WORK	4 Hrs	60 Hrs	25	75	100	3 Hrs

EVALUATION FOR BOARD EXAMINATION:

Details of Mark allocation	Max Marks
Marks for Report Preparation, Demo, Viva-voce	65
Marks for answers of 4 questions which is to be set by the external examiner from the given question bank consisting of questions in the following two topics Disaster Management and Environmental Management. Out of four questions two questions to appear from each of the above topics i.e. 2 questions x 2 topics = 4 questions 4 questions x 2 ½ marks = 10 Marks	10
Total	**75**

DETAILED SYLLABUS

ENVIRONMENTAL & DISASTER MANAGEMENT

1. ENVIRONMENTAL MANAGEMENT

Introduction – Environmental Ethics – Assessment of Socio Economic Impact – Environmental Audit – Mitigation of adverse impact on Environment – Importance of Pollution Control – Types of Industries and Industrial Pollution.

Solid waste management – Characteristics of Industrial wastes – Methods of Collection, transfer and disposal of solid wastes – Converting waste to energy – Hazardous waste management Treatment technologies.

Waste water management – Characteristics of Industrial effluents – Treatment and disposal methods – Pollution of water sources and effects on human health.

Air pollution management – Sources and effects – Dispersion of air pollutants – Air pollution control methods – Air quality management.

Noise pollution management – Effects of noise on people – Noise control methods.

2. DISASTER MANAGEMENT

Introduction – Disasters due to natural calamities such as Earthquake, Rain, Flood, Hurricane, Cyclones etc – Man made Disasters – Crisis due to fires, accidents, strikes etc – Loss of property and life..

Disaster Mitigation measures – Causes for major disasters – Risk Identification – Hazard Zones – Selection of sites for Industries and residential buildings – Minimum distances from Sea – Orientation of Buildings – Stability of Structures – Fire escapes in buildings -

Cyclone shelters – Warning systems.

Disaster Management – Preparedness, Response, Recovery – Arrangements to be made in the industries / factories and buildings – Mobilization of Emergency Services - Search and Rescue operations – First Aids – Transportation of affected people – Hospital facilities – Fire fighting arrangements – Communication systems – Restoration of Power supply – Getting assistance of neighbors / Other organizations in Recovery and Rebuilding works – Financial commitments – Compensations to be paid – Insurances – Rehabilitation.

LIST OF QUESTIONS

1. ENVIRONMENTRAL MANAGEMENT

1. What is the responsibility of an Engineer-in-charge of an Industry with respect to Public Health?
2. Define Environmental Ethic.
3. How Industries play their role in polluting the environment?
4. What is the necessity of pollution control? What are all the different organizations you know, which deal with pollution control?
5. List out the different types of pollutions caused by a Chemical / Textile / Leather / Automobile / Cement factory.
6. What is meant by Hazardous waste?
7. Define Industrial waste management.
8. Differentiate between garbage, rubbish, refuse and trash based on their composition and source.
9. Explain briefly how the quantity of solid waste generated in an industry could be reduced.
10. What are the objectives of treatments of solid wastes before disposal?
11. What are the different methods of disposal of solid wastes?
12. Explain how the principle of recycling could be applied in the process of waste minimization.
13. Define the term ‘Environmental Waste Audit’.
14. List and discuss the factors pertinent to the selection of landfill site.
15. Explain the purpose of daily cover in a sanitary landfill and state the minimum desirable depth of daily cover.
16. Describe any two methods of converting waste into energy.
17. What actions, a local body such as a municipality could take when the agency appointed for collecting and disposing the solid wastes fails to do the work continuously for number of days?
18. Write a note on Characteristics of hazardous waste.
19. What is the difference between municipal and industrial effluent ?
20. List few of the undesirable parameters / pollutants anticipated in the effluents from oil refinery industry / thermal power plants / textile industries / woolen mills / dye

industries / electroplating industries / cement plants / leather industries (any two may be asked)

21. Explain briefly the process of Equalization and Neutralization of waste water of varying characteristics discharged from an Industry.
22. Explain briefly the Physical treatments “Sedimentation” and “Floatation” processes in the waste water treatment.
23. Explain briefly when and how chemical / biological treatments are given to the waste water.
24. List the four common advanced waste water treatment processes and the pollutants they remove.
25. Describe refractory organics and the method used to remove them from the effluent.
26. Explain biological nitrification and de-nitrification.
27. Describe the basic approaches to land treatment of Industrial Effluent.
28. Describe the locations for the ultimate disposal of sludge and the treatment steps needed prior to ultimate disposal.
29. List any five Industries, which act as the major sources for Hazardous Air Pollutants.
30. List out the names of any three hazardous air pollutants and their effects on human health.
31. Explain the influence of moisture, temperature and sunlight on the severity of air pollution effects on materials.
32. Differentiate between acute and chronic health effects from Air pollution.
33. Define the term Acid rain and explain how it occurs.
34. Discuss briefly the causes for global warming and its consequences
35. Suggest suitable Air pollution control devices for a few pollutants and sources.
36. Explain how evaporative emissions and exhaust emissions are commonly controlled.
37. What are the harmful elements present in the automobile smokes? How their presence could be controlled?
38. What is the Advantage of Ozone layer in the atmosphere? State few reasons for its destruction.
39. Explain the mechanism by which hearing damage occurs.
40. List any five effects of noise other than hearing damage.
41. Explain why impulsive noise is more dangerous than steady state noise.
42. Explain briefly the Source – Path – Receiver concept of Noise control.
43. Where silencers or mufflers are used ? Explain how they reduce the noise.
44. Describe two techniques to protect the receiver from hearing loss when design / redress for noise control fail.
45. What are the problems faced by the people residing along the side of a railway track and near to an Airport? What provisions could be made in their houses to reduce the problem?

2. DISASTER MANAGEMENT

1. What is meant by Disaster Management? What are the different stages of Disaster management?
2. Differentiate Natural Disasters and Man made Disasters with examples.
3. Describe the necessity of Risk identification and Assessment Surveys while planning a project.
4. What is Disasters recovery and what does it mean to an Industry?
5. What are the factors to be considered while planning the rebuilding works after a major disaster due to flood / cyclone / earthquake? (Any one may be asked)
6. List out the public emergency services available in the state, which could be approached for help during a natural disaster.
7. Specify the role played by an Engineer in the process of Disaster management.
8. What is the cause for Earthquakes? How they are measured? Which parts of India are more vulnerable for frequent earthquakes?
9. What was the cause for the Tsunami 2004 which inflicted heavy loss to life and property along the coast of Tamilnadu ? Specify its epicenter and magnitude.
10. Specify the Earthquake Hazard Zones in which the following towns of Tamilnadu lie: (a) Chennai (b) Nagapattinam (c) Coimbatore (d) Madurai (e) Salem.
11. Which parts of India are experiencing frequent natural calamities such as (a) heavy rain fall (b) huge losses due to floods (c) severe cyclones
12. Define basic wind speed. What will be the peak wind speed in (a) Very high damage risk zone – A, (b) High damage risk zone, (c) Low damage risk zone.
13. Specify the minimum distance from the Sea shore and minimum height above the mean sea level, desirable for the location of buildings.
14. Explain how the topography of the site plays a role in the disasters caused by floods and cyclones.
15. Explain how the shape and orientation of buildings could reduce the damages due to cyclones.
16. What is a cyclone shelter ? When and where it is provided ? What are its requirements ?
17. What Precautionary measures have to be taken by the authorities before opening a dam for discharging the excess water into a canal/river ?
18. What are the causes for fire accidents ? Specify the remedial measures to be taken in buildings to avoid fire accidents.
19. What is a fire escape in multistoried buildings ? What are its requirements ?
20. How the imamates of a multistory building are to be evacuted in the event of a fire/Chemical spill/Toxic Air Situation/ Terrorist attack, (any one may be asked).
21. Describe different fire fighting arrangements to be provided in an Industry.
22. Explain the necessity of disaster warning systems in Industries.
23. Explain how rescue operations have to be carried out in the case of collapse of buildings due to earthquake / blast / Cyclone / flood.

24. What are the necessary steps to be taken to avoid dangerous epidemics after a flood disaster?
25. What relief works that have to be carried out to save the lives of workers when the factory area is suddenly affected by a dangerous gas leak / sudden flooding ?
26. What are the difficulties faced by an Industry when there is a sudden power failure? How such a situation could be managed?
27. What are the difficulties faced by the Management when there is a group clash between the workers? How such a situation could be managed?
28. What will be the problems faced by the management of an Industry when a worker dies because of the failure of a mechanical device due to poor maintenance? How to manage such a situation ?
29. What precautionary measures have to be taken to avoid accidents to labourers in the Industry in a workshop / during handling of dangerous Chemicals / during construction of buildings / during the building maintenance works.
30. Explain the necessity of medical care facilities in an Industry / Project site.
31. Explain the necessity of proper training to the employees of Industries dealing with hazardous products, to act during disasters.
32. What type of disaster is expected in coal mines, cotton mills, Oil refineries, ship yards and gas plants?
33. What is meant by Emergency Plan Rehearsal? What are the advantages of such Rehearsals?
34. What action you will take when your employees could not reach the factory site because of continuous strike by Public Transport workers?
35. What immediate actions you will initiate when the quarters of your factory workers are suddenly flooded due to the breach in a nearly lake / dam, during heavy rain?
36. What steps you will take to avoid a break down when the workers union of your Industry have given a strike notice?
37. List out few possible crisis in an organization caused by its workers? What could be the part of the middle level officials in managing such crisis?
38. What types of warning systems are available to alert the people in the case of predicted disasters, such as floods, cyclone etc.
39. Explain the necessity of Team work in the crisis management in an Industry / Local body.
40. What factors are to be considered while fixing compensation to the workers in the case of severe accidents causing disability / death to them?
41. Explain the legal / financial problems the management has to face if safely measures taken by them are found to be in adequate.
42. Describe the importance of insurance to men and machinery of an Industry dealing with dangerous jobs.
43. What precautions have to be taken while storing explosives in a match/ fire crackers factory?

44. What are the arrangements required for emergency rescue works in the case of Atomic Power Plants?
45. Why residential quarters are not constructed nearer to Atomic Power Plants?

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VII SEMESTER

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN TEXTILE TECHNOLOGY /
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III YEAR

M- SCHEME

VII SEMESTER

2015 – 2016 onwards

INDUSTRIAL TRAINING & VIVA VOCE

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING,TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH

M -SCHEME

(to be Implements for the student Admitted from the year 2015-2016 onwards)

Course Name	:	DIPLOMA IN TEXTILE TECHNOLOGY **SANDWICH**
Course Code	:	2060
Subject Code	:	36092
Semester	:	VII Semester
Subject Title	:	INDUSTRIAL TRAINING & VIVA VOCE

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 15 weeks

Subject	Instructions		Examination			
	Days / Week	Weeks / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
INDUSTRIAL TRAINING & VIVA VOCE	6	15	25	75	100	3 Hrs

Each student has to undergo industrial Training in Textile Industries for a period of 15 weeks during VII Semester.

ALLOTMENT OF MARKS:

TIME: 3 HRS.	MAX.MARKS: 100
Industrial Review I (6th week)	10
Industrial Review II (12th week)	10
Attendance	05
Total	25

BOARD EXAMINATION

ALLOCATION OF MARKS

Report and Record	25
Report Presentation (Write up)	20
Viva – Voce	30
Total	75