



# **SYLLABUS**

## **DIPLOMA IN TEXTILE TECHNOLOGY FULL TIME / TEXTILE TECHNOLOGY SANDWICH**

**Course Code: 1060/2060**

**2011-2012**

**L - SCHEME**



**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

# DIPLOMA COURSES IN ENGINEERING/TECHNOLOGY (SEMESTER SYSTEM)

(Implemented from 2011- 2012)

## L – SCHEME

### REGULATIONS\*

\* *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 <sup>❖</sup> and the First Year is common to all Engineering Branches.

##### b. Sandwich (3½ years)

The Course for the Sandwich Diploma in Engineering shall extend over a period of three and half academic years, consisting of 7 semesters <sup>❖</sup> 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 4<sup>th</sup> and/or during 7<sup>th</sup> 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 Part Time Diploma in Engineering shall extend over a period of 4 academic years containing of 8 semesters <sup>❖</sup>, the subjects of 3 year full time diploma courses being regrouped for academic convenience.

<sup>❖</sup> Each Semester will have 16 weeks duration of study with 35 hrs. /Week for Regular Diploma Course and 18 hrs. / Week for Part-Time Diploma Course.

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 2011 – 2012 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 Examinations 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 Secretary ship.

# Subject to the approval of the AICTE

- For the Diploma Courses related with Engineering/Technology, the related / equivalent subjects prescribed along with Practicals 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. 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

**6. 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 subjects. The curriculum outline is given in Annexure - I

**7. 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.

**8. 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 be 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 6 <sup>th</sup> week	50	2 Hrs
Test II	Unit – III & IV	End of 12 <sup>th</sup> week	50	2 Hrs
Test III	<b>Model Examination - Compulsory</b> Covering all the 5 Units. (Board Examinations-question paper-pattern).	End of 16 <sup>th</sup> week	75	3 Hrs

**# - From the Academic year 2011-2012 onwards.**

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

14 Questions X 1 mark	... ..	14 marks
6 Questions X 6 marks	} ... ..	36 marks
(OR) 3 Questions X 12 marks		-----
<b>Total</b>		<b>50 marks</b> -----

**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 same	:	<b>5 Marks</b>	(Award of marks as theory subjects)
b) Procedure/ observation and tabulation/ Other Practical related Work	:	<b>10 Marks</b>	
c) Record writing	:	<b>10 Marks</b>	
<b>TOTAL</b>	:	<b>25 Marks</b>	

- 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 assignments, Tests 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.*

**9. Communication and Life Skills Practical:**

The Communication and Life Skills 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 on:

- ❖ Monodic Communication
- ❖ Dyadic Communication
- ❖ Professional Communication
- ❖ Pronunciation
- ❖ Writing Resumes
- ❖ Interview Techniques

Sessional Mark ..... **25 Marks**

**10. Project Work:**

The students of all the Diploma Courses (**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	...	<b>10 marks</b>
Project Review II	...	<b>10 marks</b>
Attendance	...	<b>05 marks</b> (Award of marks same as theory
		Subject pattern)
		-----
Total	...	<b>25 marks</b>
		-----

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 Marks for Project Work & Viva Voce in Board Examinations:**

Viva Voce	...	<b>25 marks</b>
Demonstration/Presentation	...	<b>20 marks</b>
		-----
Total	...	<b>45 marks</b>
		-----

**c) Written Test Mark (from 3 topics for 1 hour duration):** \$

i) Entrepreneurship	5 questions X 2 marks	=	<b>10 marks</b>
ii) Environment Management	5 questions X 2 marks	=	<b>10 marks</b>
iii) Disaster Management	5 questions X 2 marks	=	<b>10 marks</b>
			-----
			<b>30 marks</b>
			-----

\$ - 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	--	<b>45 Marks</b>
Written Test Mark (from 3 topics for 1 hour duration)	--	<b>30 Marks</b>
TOTAL	--	<b>75 Marks</b>

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

**11. Scheme of Examinations:**

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

**12. 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 subjects* out of the total prescribed maximum marks including both the Internal Assessment and the Board Examinations 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 Theory Examinations* and a minimum of *35 marks out of 75 marks in the Board Practical Examinations*.

**13. Classification of successful candidates:**

Classification of candidates who passed out the final examinations from April 2014 onwards (Joined in first year in 2011-2012) will be done as specified below.

**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 marks in all semesters put together except I and II semesters and passes all the above semesters in the first appearance itself and completes all subjects including that of I & II semesters 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 except I & II semesters and completes all subjects including that of the I & II semesters 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 passed out Final Examination from October 2014 /April 2015 onwards (both joined in First Year in 2011-2012)

**14. 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).

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## **Chairperson**

**Thiru. Ramesh Chand Meena, I.A.S.,**

Commissioner of Technical Education  
Directorate of Technical Education  
Chennai – 600 025.

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**Thiru. S.R. SAMPATHU,**

Principal I/C  
EIT Polytechnic College,  
Kavinapadi – 600 025. Erode

## **Convener**

**Thiru. Dr.P.S.RAVICHANDRAN,**

Principal I/C  
SSM Polytechnic College,  
Kumarappalayam – 638183.

## **Members**

1. Mr. R. Gopalakrishnan  
HOD / Textile Technology, SSM Polytechnic College,  
Komarapalayam – 638183
2. Mr. A. Richard Kamalesan  
Lecturer (Sl. G) / Textile Technology, EIT Polytechnic College,  
Kavindapadi – 638 456.
3. Mr. G. Panneer Selvam  
Centre Incharge, SITRA Textile Service Centre,  
Chennimalai, Erode – 638 051.
4. Mr. R. Periyasamy  
HOD / Textile Technology, Thiagarajar Polytechnic College,  
Salem – 636 005.
5. Mr. P. Angappan  
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7. Mr. K. Sampath  
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Veppadai.
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H.O.D. Textile technology, KSR College of Engineering,  
Tiruchengode
9. M r. K. Gopala Krishnan  
Lecturer, Nachimuthu Polytechnic College,  
Pollachi
10. Mr. S. Janarthanan  
Lecturer (Selection grade), Thiagarajar Polytechnic College,  
Salem – 636 005.

## **DIPLOMA IN TEXTILE TECHNOLOGY**

### **DIPLOMA IN TEXTILE TECHNOLOGY (SANDWICH)**

#### **Significance of the Course:**

The Textile industry is one of the most ancient and traditional industries in India as well as in other countries of the world. The steam engine and some of the other major inventions were originally invented for this industry only, which later on triggered the Industrial revolution world wide.

The technology of spinning, weaving and knitting has been rapidly progressing in the developing countries of the world. A spectacular progress was possible because of the advent of new generation of manmade fibres such as nylon, polyester, acrylic, polypropylene etc.

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 industry, 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.) and the mechanical processing of these fibres namely spinning, twisting or doubling, weaving and knitting.

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 and weaving 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 such as de-sizing, scouring, bleaching, dyeing, printing and finishing 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 3<sup>rd</sup> 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 5<sup>th</sup> 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

L Scheme

### CURRICULUM OUTLINE

#### I SEMESTER

Subject Code	SUBJECT	HOURS PER WEEK			
		Theory Hours	Tutorial / Drawing	Practical hours	Total Hours
20011	Communication English-I	5	-	-	5
20012	Engineering Mathematics -I	5	-	-	5
20013	Engineering Mathematics-II	5	-	-	5
20014	Engineering Physics-I	5	-	-	5
20015	Engineering Chemistry-I	5	-	-	5
20016	Engineering Graphics -I	-	6	-	6
20017	Engineering Physics–I Practical	-	-	2	2
20018	Engineering Chemistry-I Practical	-	-	2	4
	TOTAL	25	6	4	35

#### II SEMESTER

Subject Code	SUBJECT	HOURS PER WEEK			
		Theory Hours	Tutorial / Drawing	Practical hours	Total Hours
20021	Communication English-II	4	-	-	4
20022	Engineering Mathematics –III	5	-	-	5
20023	Engineering Mathematics-IV	5	-	-	5
20024	Engineering Physics-II	4	-	-	4
20025	Engineering Chemistry-II	4	-	-	4
20026	Engineering Graphics -II	-	6	-	6
20027	Engineering Physics–II Practical	-	-	2	2
20028	Engineering Chemistry-II Practical	-	-	2	2
20029	Work shop Practice	-	-	3	3
	TOTAL	22	6	7	35

# DIPLOMA IN TEXTILE TECHNOLOGY

Course code: 1060/2060

L Scheme

## CURRICULUM OUTLINE

### THIRD SEMESTER

Subject Code	SUBJECT	HOURS PER WEEK			
		Theory Hours	Tutorial / Drawing	Practical hours	Total Hours
26031	Fibre Science and Technology	5	-		5
26032	Yarn Manufacture - I	5	-		5
26033	Fabric Manufacture - I	5	-		5
26034	Fibre Identification - I Practical		-	4	4
26035	Yarn Manufacture - I Practical		-	6	6
26036	Fabric Manufacture - I Practical		-	6	6
20001	Computer Application Practical**		-	4	4
TOTAL		15	-	20	35

\*\* Common Paper with All Branches

### FOURTH SEMESTER

Subject Code	SUBJECT	HOURS PER WEEK			
		Theory Hours	Tutorial / Drawing	Practical hours	Total Hours
26041	Basic Engineering	5			5
26042	Yarn Manufacture – II	5			5
26043	Fabric Manufacture – II	5			5
26044	Elementary Textile Design	4			4
26045	Yarn Manufacture – II Practical			6	6
26046	Fabric Manufacture – II Practical			6	6
26047	Elementary Textile Design Practical			4	4
TOTAL		19		16	35

# DIPLOMA IN TEXTILE TECHNOLOGY

Course code: 1060/2060

L Scheme

## CURRICULUM OUTLINE

### FIFTH SEMESTER

Subject Code	SUBJECT	HOURS PER WEEK			
		Theory Hours	Tutorial / Drawing	Practical hours	Total Hours
26051	Textile Testing	5			5
26052	Textile Wet Processing	5			5
26053	Advanced Textile Design	4			4
	Elective I				
26071	Advanced Textile Manufacture	5			5
26072	Technical Textiles				
26055	Textile Testing			6	6
26056	Textile Wet Processing			6	6
20002	Communication and Life Skills Practical**			4	4
TOTAL		19		16	35

\*\* Common Paper with All Branches

### SIXTH SEMESTER

Subject Code	SUBJECT	HOURS PER WEEK			
		Theory Hours	Tutorial / Drawing	Practical hours	Total Hours
26061	Textile Management	5			5
26062	Garment Manufacture	5			5
	Elective II				
26081	Maintenance of Textile Machinery	5			5
26082	Process control in Spinning				
26064	Garment Manufacture practical			6	6
26065	Textile CAD Practical			4	4
26066	Garment CAD Practical			6	6
26067	Project Work			4	4
TOTAL		15		20	35

## ANNEXURE – II

### **DIPLOMA IN TEXTILE TECHNOLOGY**

**Course code: 1060/260**

**L Scheme**

### **SCHEME OF THE EXAMINATION**

#### **I SEMESTER**

Subject Code	SUBJECT	Examination Marks			Minimum for pass	Duration of Exam Hours
		Internal assessment marks	Board Exam marks	Total Marks		
20011	Communication English-I	25	75	100	40	3
20012	Engineering Mathematics -I	25	75	100	40	3
20013	Engineering Mathematics-II	25	75	100	40	3
20014	Engineering Physics-I	25	75	100	40	3
20015	Engineering Chemistry-I	25	75	100	40	3
20016	Engineering Graphics -I	25	75	100	40	3
20017	Engineering Physics–I Practical	25	75	100	50	3
20018	Engineering Chemistry-I Practical	25	75	100	50	3
	TOTAL	200	600	800		

## II SEMESTER

Subject Code	SUBJECT	Examination Marks			Minimum for pass	Duration of Exam Hours
		Internal assessment mark	Board Exam. Mark	Total Marks		
20021	Communication English-II	25	75	100	40	3
20022	Engineering Mathematics –III	25	75	100	40	3
20023	Engineering Mathematics-IV	25	75	100	40	3
20024	Engineering Physics-II	25	75	100	40	3
20025	Engineering Chemistry-II	25	75	100	40	3
20026	Engineering Graphics -II	25	75	100	40	3
20027	Engineering Physics–II Practical	25	75	100	50	3
20028	Engineering Chemistry-II Practical	25	75	100	50	3
20029	Work shop Practice	25	75	100	50	3
	TOTAL	225	675	900		



**DIPLOMA IN TEXTILE TECHNOLOGY****Course code: 1060****L Scheme****SCHEME OF THE EXAMINATION****THIRD SEMESTER**

Subject Code	SUBJECT	Examination Marks			Minimum for pass	Duration of Exam Hours
		Internal assessment Marks	Board Exam. Marks	Total Mark		
26031	Fibre Science and Technology	25	75	100	40	3
26032	Yarn Manufacture - I	25	75	100	40	3
26033	Fabric Manufacture - I	25	75	100	40	3
26034	Fibre Identification - I Practical	25	75	100	50	3
26035	Yarn Manufacture - I Practical	25	75	100	50	3
26036	Fabric Manufacture - I Practical	25	75	100	50	3
20001	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 assessment Marks	Board Exam Marks	Total Mark		
26041	Basic Engineering	25	75	100	40	3
26042	Yarn Manufacture – II	25	75	100	40	3
26043	Fabric Manufacture – II	25	75	100	40	3
26044	Elementary Textile Design	25	75	100	40	3
26045	Yarn Manufacture – II Practical	25	75	100	50	3
26046	Fabric Manufacture – II Practical	25	75	100	50	3
26047	Elementary Textile Design Practical	25	75	100	50	3
TOTAL		175	525	700		

**DIPLOMA IN TEXTILE TECHNOLOGY****Course code: 1060****L Scheme****SCHEME OF THE EXAMINATION****FIFTH SEMESTER**

Subject Code	SUBJECT	Examination Marks			Minimum for pass	Duration of Exam Hours
		Internal assessment Marks	Board Exam. Marks	Total Mark		
26051	Textile Testing	25	75	100	40	3
26052	Textile Wet Processing	25	75	100	40	3
26053	Advanced Textile Design	25	75	100	40	3
	Elective I					
26071	Advanced Textile Manufacture	25	75	100	40	3
26072	Technical Textiles					
26055	Textile Testing practical	25	75	100	50	3
26056	Textile Wet Processing practical	25	75	100	50	3
20002	Communication and Life Skills 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 assessment Marks	Board Exam Marks	Total Mark		
26061	Textile Management	25	75	100	40	3
26062	Garment Manufacture	25	75	100	40	3
	Elective II					
26081	Maintenance of Textile Machinery	25	75	100	40	3
26082	Process control in Spinning					
26064	Garment Manufacture practical	25	75	100	50	3
26065	Textile CAD Practical	25	75	100	50	3
26066	Garment CAD Practical	25	75	100	50	3
26067	Project Work	25	75	100	50	3
	TOTAL	175	525	700		

**SEVENTH SEMESTER**

<b>Subject Code</b>	<b>SUBJECT</b>	<b>Examination Marks</b>			<b>Minimum for pass</b>	<b>Duration of Exam Hours</b>
		<b>Internal assessment Marks</b>	<b>Board Exam Marks</b>	<b>Total Mark</b>		
<b>26092</b>	<b>INDUSTRIAL TRAINING &amp; VIVA VOCE</b>	25	75	100	50	3

**ALTERNATIVE SUBJECTS FOR I AND II SEMESTER SUBJECTS****'K' SCHEME TO 'L' SCHEME FROM APRIL, 2010-2011****I and II Semesters**

<b>S.No.</b>	<b>SUBJECTS IN K – SCHEME</b>	<b>ALTERNATIVE SUBJECTS IN THE L – SCHEME</b>
1	English	2001- Communication English-II
2	Basics Of Computer Science	No Equivalent subject
3	Mathematics-I	1002- Mathematics ( I semester)
4	Mathematics-II	2002-Applied Mathematics ( II Semester)
5	Applied Physics	2003-Engineering Physics-II ( II Semester)
6	Applied Chemistry	2004-Engineering Chemistry-II ( II Semester)
7	Technical Drawing	2005-Engineering Graphics
8	Applied Physics Practical	2006-Physics Practical
9	Applied Chemistry Practical	2007-Chemistry Practical
10	Workshop	2008-Workshop Practice
11	English Communication Practical	IV / V Semester English Communication and Life Skill Practical

<b>ALTERNATIVE SUBJECTS FOR III AND IV SEMESTERS SUBJECTS</b>			
<b>SUBJECTS IN K – SCHEME</b>		<b>ALTERNATIVE SUBJECTS IN THE L – SCHEME</b>	
	<b>III SEMESTER</b>		
16031	Fibre Science and Technology	26031	Fibre Science and Technology
16032	Basics of Engineering	26041	Basic Engineering
16033	Yarn Manufacture – I	26032	Yarn Manufacture – I
16034	Fabric Manufacture – I	26033	Fabric Manufacture – I
16035	Yarn Manufacture – I Practical	26035	Yarn Manufacture – I Practical
16036	Fabric Manufacture – I Practical	26036	Fabric Manufacture – I Practical
	<b>IV SEMESTER</b>		
16041	Textile Wet Processing	26052	Textile Wet Processing
16042	Yarn Manufacture – II	26042	Yarn Manufacture – II
16043	Fabric Manufacture – II	26043	Fabric Manufacture – II
16044	Textile Wet Processing Practical	26056	Textile Wet Processing Practical
16045	Yarn Manufacture – II Practical	26045	Yarn Manufacture – II Practical
16046	Fabric Manufacture – II Practical	26046	Fabric Manufacture – II Practical

<b>ALTERNATIVE SUBJECTS FOR V and VI SEMESTERS SUBJECTS</b>			
<b>SUBJECTS IN K – SCHEME</b>		<b>ALTERNATIVE SUBJECTS IN THE L – SCHEME</b>	
	<b>V SEMESTER</b>		
16051	Textile Testing	26051	Textile Testing
16052	Garment Technology	26062	Garment Technology
	Elective – I		Elective – I
16071	Advanced Textile Manufacture	26071	Advanced Textile Manufacture
16072	Statistical Quality Control in Textiles		No Equivalent
16054	Textile Testing practical	26055	Textile Testing practical
16055	Garment Technology Practical	26064	Garment Technology Practical
11011	English Communication Skill Practical	26057	English Communication and Life Skill Development Practical
	<b>VI SEMESTER</b>		
16061	Textile Management	26061	Textile Management
16062	Fabric structure		No Equivalent
	Elective – II		
16081	Maintenance of Textile Machineries	26081	Maintenance of Textile Machineries
16081	Textile Marketing and Merchandising		No Equivalent
16064	Textile CAD Practical		No Equivalent
16065	Fabric structure practical	26047	Elementary Textile Design Practical
16066	Project work	26067	Project work
	<b>VII SEMESTER</b>		
16091	Industrial Training & Viva Voce	26092	Industrial Training & Viva Voce

## **III SEMESTER**



**DIPLOMA IN TEXTILE TECHNOLOGY**  
**DIPLOMA IN TEXTILE TECHNOLOGY (SANDWICH)**

**L - SCHEME**  
**2011 - 2012**

**FIBRE SCIENCE AND TECHNOLOGY**

**DIRECTORATE OF TECHNICAL EDUCATION**  
**GOVERNMENT OF TAMILNADU**



## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY  
Course Code : 1060  
Subject Code : 26031  
Semester : III Semester  
Subject Title : FIBRE SCIENCE AND TECHNOLOGY

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			Duration
	Hours / Week	Hours / Semester	Marks			
FIBRE SCIENCE AND TECNOLOGY	5 Hrs	80 Hrs	Internal Assessment	Board Examination	Total	3 Hrs
			25	75	100	

### Topics and allocation

Sl. No	Topic	Time (hrs.)
1	INTRODUCTION	16
2	VEGETABLE FIBRES	16
3	ANIMAL FIBRES	16
4	REGENERATED FIBRES	16
5	SYNTHETIC FIBRES	16
Total		80

**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 and length and the amount of draft applied to it during its spinning. Fabrics made from different fibres and their blends are put to 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 Technology of extraction of naturel fibres and the manufacture of man made fibres.

**Objectives**

- To know about the various classifications of textile fibres, their origin and chemical nature, properties etc.
- To know about the chemical composition their reaction & methods and uses.
- To know about the Indian & hybrid cotton varieties and their uses.
- To know about the Flax fibre and Jute fibre, cultivation and extraction and their uses.
- To know about Wool fibre, sequence of process for yarn manufacture, uses etc.
- To know about silk fibres and uses.
- To study about different techniques of spinning – manufacture of Viscose rayon and Polynosic rayon etc.
- To know about Tencel rayon and HT rayon.
- To know about the manufacture of Nylon 6, Nylon 66 polyester and Acrylic fibres and their properties & uses.
- To know briefly about the Glass fibre, bamboo, casein, carbon, Nomex and Kevlar and Lycra fibres.

## 26031 FIBRE SCIENCE AND TECHNOLOGY

### DETAILED SYLLABUS

Contents: Theory

Unit	Name of the Topic	Hours
1	<b>INTRODUCTION:</b> <b>Definition of Textile Fibre.</b> 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) - Microscopic test, burning test, Solubility test - Definition of monomer, polymer, repeat unit - polymerization - Degree of polymerization, Staple fibre, filament yarn, mono filament, multifilament, spun yarn, ply yarn. Types of polymerization - Addition and condensation polymerization.	16
2	<b>VEGETABLE FIBRES</b> <b>Cotton:</b> Cotton producing countries and states in India - Classification of commercial cottons and their spinnability - Indian hybrid cottons with their characteristics - Physical and chemical structures of cotton fibre - Physical and chemical properties - Length, fineness, strength and count spun - Uses. <b>Flax:</b> Flax producing countries - Extraction of fibre - Physical and chemical properties - Uses. <b>Jute:</b> Jute producing countries and states in India - Extraction of fibre - Physical and chemical properties - Uses of Bamboo, soya, sisal fibre.	16
3	<b>ANIMAL FIBRES</b> <b>Wool:</b> Wool producing countries - Classification of wool with respect to fleece and breeds - Physical and chemical structure - Physical and chemical properties - Comparison of woolen and worsted yarns - Uses. <b>Silk:</b> Silk producing countries - Types of silk - Wild and cultivated - Reeling, throwing and doubling - Degumming of silk - Weighting of silk - Physical and chemical properties – Uses.	16
4	<b>REGENERATED FIBRES :</b> Methods and Types of spinning of man made fibres - Wet, dry and melt - Drawing and its importance. <b>Viscose Rayon:</b> Viscose Rayon manufactures in India - Process flow chart of Manufacturing of viscose rayon filament and staple fibre with important process particulars – Properties - Uses. <b>High Wet Modulus rayon:</b> Process flow chart - Manufacturing of rayon filament - staple fibre	16

	<p>– Properties - Uses.</p> <p><b>HT Rayon:</b></p> <p>Modification of viscose process - manufacture of Tenesco HT Rayons - Properties - Uses.</p> <p><b>Tencel Rayon:</b> Brief study</p>	
5	<p><b>SYNTHETIC FIBRES:</b></p> <p>Nylon and polyester manufactures in India.</p> <p><b>Nylon – 6,6:</b> Raw material - process flow chart - Nylon 6,6 Manufacture - Properties - uses.</p> <p><b>Nylon - 6 :</b> Raw material - process flow chart - Nylon 6 Manufacture - Properties - uses.</p> <p><b>Polyester :</b> Raw material - process flow chart - Manufacture of Polyester - Properties - uses.</p> <p><b>Acrylic Fibre:</b> Raw material - process flow chart - Manufacture of acrylic fibre - Properties - uses.</p> <p><b>Uses of the following fibres:</b> Glass, Asbestos, Casein, Carbon, Nomex, Kevlar &amp; Polyurethane.</p>	16

**TEXT BOOKS:**

<b>S.No</b>	<b>TITLE</b>	<b>AUTHOR</b>	<b>PUBLISHERS</b>	<b>YEAR OF PUBLICATION</b>
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:**

<b>S.No</b>	<b>TITLE</b>	<b>AUTHOR</b>	<b>PUBLISHERS</b>	<b>YEAR OF PUBLICATION</b>
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

III SEMESTER  
**26031 FIBRE SCIENCE AND TECHNOLOGY**  
MODEL QUESTION PAPER 1

Time – 3 Hours

Max.Marks – 75

**PART-A**

Marks 15 x 1 = 15

**Note :** Answer any 15 questions

- 1 . Define the term textile fiber
2. Define the term polymer.
3. Write down the difference between mono-filament and multi-filament yarns.
4. What is the object of microscopic test?
5. Mention the cotton producing countries in the world.
6. What are the uses of jute?
7. What are the uses of flax?
8. Write the name of any two countries where flax is cultivated.
9. Write down the classification of wool.
10. Give the necessity for scouring of raw wool
11. Mention the name of silk producing countries.
12. Differentiate wild silk and cultivated silk.
13. How does wet spinning differ from dry spinning process?
14. Write down the use of HT rayon.
15. What do you mean by high wet modulus rayon?
16. What is meant by xanthation?
17. Name the manufacturers of polyester in India.
18. Write down two important special properties of nylon 66.
19. Give the uses of acrylic fibres.
20. What are the uses of carbon fibers

**PART- B**

Marks 5 x 12 = 60

**Note :** Answer all Questions

- 21 A.** (i) Give the classification of textile fibres based on origin. (8)  
(ii) Write a brief note on degree of polymerization (4)

**OR**

- B.** (i) Explain the properties required for an ideal textile fibre. (8)  
(ii) Explain the identification of cotton and polyester fibres by microscopic and burning tests. (4)

- 22 A.** (i) Explain the physical and chemical properties of cotton. (8)  
(ii) Explain the process of extraction of flax fiber from its plant. (4)

**OR**

**B. (i)** Note down at least 4 hybrid cottons varieties and specify their staple length, fineness value and spinnable yarn count. (8)

(ii) Mention the uses of bamboo (4)

**23. A (i)** Explain the physical and chemical properties of wool. (8)

(ii) Compare woolen and worsted yarns. (4)

**OR**

**B (i)** Explain in detail the process involved in silk yarn manufacture. (12)

**24 A.** Give the flow chart with important particular of the manufacturing method of viscose rayon filament yarn (12)

**OR**

**B (i)** Explain the physical and chemical properties of high wet modulus rayon. (8)

(ii) Write a brief note on tencel rayon (4)

**25 A. (i)** Give flow chart with important particulars of the manufacture process of polyester (12)

**OR**

**B (i)** Explain the physical and chemical properties of nylon 6 (8)

(ii) Write briefly about (i) Glass fibre and (ii) Kevlar fibre (4)

III SEMESTER  
**26031 FIBRE SCIENCE AND TECHNOLOGY**  
MODEL QUESTION PAPER - 2

Time – 3 Hours

Max.Marks – 75

**PART- A**

Marks 15 x 1 = 15

**Note :** Answer any 15 questions

1. What do you mean by staple fibre?
2. Define the term: Repeat unit.
3. What is the object of Solubility test?
4. Specify the difference between spun yarn and filament yarn.
5. What are the jute producing countries?
6. What are the uses of flax?
7. State the uses of sisal fibers?
8. List out any two physical properties of cotton.
9. Name the different types of wool.
10. Mention the uses of wool.
11. What is of degumming of silk?
12. Mention the name of silk producing countries.
13. What do you mean by melt spinning?
14. State the uses of High Wet Modular Rayon.
15. What is meant by High Tenacity Rayon?
16. Write the uses of Tencel Rayon.
17. Mention the raw materials used in the manufacture of polyester.
18. Name the manufactures of Nylon in India.
19. Give the uses of acrylic fibres
20. Mention the uses of Nomex.

**PART- B**

Marks 5 x 12 = 60

**Note :** Answer all Questions

- 21. A.** i) Explain the properties required for an ideal textile fibre. (8)  
ii) Give a brief note on types of polymerization. (4)

**OR**

- B.** i) Give the classification of textile fibre based on chemical nature. (8)  
ii) Explain how wool and nylon fibres are identified by Microscopic and burning tests. (4)

- 22. A.** i) Write down any four hybrid Varieties of cotton, and specify their length, fineness value and spinnability. (8)  
ii) Explain the physical structure of cotton fibre. (4)

**OR**



- B.** i) Explain the extraction of jute fibres. (8)  
ii) Explain the chemical structure of cotton fibre. (4)

- 23 A.** i) Discuss the classification of wool with respect to fleece and breed. (12)

**OR**

- B** i) Explain the physical and chemical properties of silk fibre (8)  
ii) Write a brief note on weighting of silk. (4)

- 24. A.** i) Explain the physical and chemical properties of Viscose rayon. (8)  
ii) Write about drawing and its importance. (4)

**OR**

- B.** Give the flow chart for manufacture of high wet modulus rayon filament and staple fibre, with important process particulars. (12)

- 25. A.** i) Discuss the physical and chemical properties of polyester. (8)  
ii) Mention the uses of glass fibre. (4)

**OR**

- B.** Give the flow chart for the manufacture of nylon 6.6. (12)  
Note the important process particulars also.

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**DIPLOMA IN TEXTILE TECHNOLOGY/  
TEXTILE TECHNOLOGY (SANDWICH)**

**L - SCHEME**

**2011 - 2012**

**YARN MANUFACTURE I**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY  
Course Code : 1060  
Subject Code : 26032  
Semester : III Semester  
Subject Title : YARN MANUFACTURE - I

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
YARN MANUFACTURE - I	5 Hrs	80 Hrs	Internal Assessment	Board Examination	Total	
			25	75	100	

### Topics and allocation

UNIT	TOPIC	TIME (HRS.)
1	GINNING AND BLOWROOM	16
2	MODERN DEVELOPMENTS IN BLOW ROOM	16
3	CARDING	16
4	MODERN DEVELOPMENTS IN CARDING	16
5	DRAW FRAME	16
TOTAL		80

## **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.

## 26032 YARN MANUFACTURE I

### DETAILED SYLLABUS

Content : Theory

Unit	Name of the Topic	Hours
1	<p><b>GINNING AND BLOWROOM:</b></p> <p><b>Ginning:</b> Objects - types of gins and their suitability. Blending - Objects and their effects on yarn quality - Fibre properties to be considered for blending - Homogeneous Mixing – Meaning and importance - Typical mixing for coarse, medium and fine counts - Comparison between mixing and blending - Mixing and blending equipments - Working of multi mixer, and unifloc.</p> <p><b>Blow room:</b> Objectives of blow room process - Principles of opening and cleaning - Description and working of Hopper bale breaker, hopper feeder, step cleaner, Aero dynamic cleaner, Mono cylinder and ERM cleaner - Study of scutcher - Krischner beater - Piano feed regulating motion and lap forming device.</p>	16
2	<p><b>MODERN DEVELOPMENTS IN BLOW ROOM:</b></p> <p>Salient features of modern blow room - Study of pneumatic conveyers, condensers, distributors, filters, Automatic Waste Evacuation Systems (AWES), metal detectors, and Fire diverters - Blow room sequences employed for latest openers and beaters suitable for fine, medium and coarse cotton (flow chart only) - Study of automatic scutcher - auto lap doffing unit - Defects in blow room laps, causes and remedial measures - Popular manufacturers of modern Blow room lines.</p>	16
3	<p><b>CARDING:</b></p> <p>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. Heel and toe arrangements in carding machine. Card Settings recommended for different grades of cotton and manmade fibers. Brief study about stripping and grinding. Defects in card sliver, their causes and remedies. Study of chute feed system, advantages and disadvantages.</p>	16
4	<p><b>MODERN DEVELOPMENTS IN CARDING:</b></p> <p>Modern development in different regions – feed, licker-in, flats, cylinder and condensing zones - Study of Apron Web doffing device - Brief study of auto leveller - Open and closed loop systems - Dust extraction system in card - Automatic Waste Evacuation System (AWES) - Popular manufacturers of modern Carding machines.</p>	16
5	<p><b>DRAW FRAME:</b></p> <p>Objects of drawing - principles of doubling and drafting at draw frame - Study of fibre arrangements in the carded and drawing slivers - Breaker and Finisher Drawing Passages - Functions of different parts of draw frame - Passage of material through draw frame - Draft and its distribution - Roller weighting systems - spring and pneumatic weighting systems. Roller settings and its importance - Drafting systems - Polar drafting and</p>	16

	RSB drafting systems - Stop motions and their advantages - Salient features of modern draw frames - Brief study of auto levelers in modern draw frames - Brief study of drafting irregularities - Sliver evenness, short, medium and long term variations - Sliver defects in draw frame their causes and remedies - Popular manufacturers of modern Draw Frames.	
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**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

**III SEMESTER**  
**16032 YARN MANUFACTURE I**  
**MODEL QUESTION PAPER– 1**

**Time – 3 Hours**

**Max.Marks – 75**

**PART A.**

Marks 15 x 1 = 15

**Note:** Answer any 15 questions

1. What is ginning?
2. What are the fiber properties to be considered for blending?
3. Name the different types of machines used for mixing cotton.
4. What is the function of piano feed regulating motion?
5. Write any two salient features of modern blow room
6. Write the function of distributors
7. What is auto lap doffing?
8. Write any two defects in blow room laps.
9. What is carding action?
10. What is the function of mote knife?
11. What is stripping?
12. Write any two advantages of chute feed system
13. Write the development in licker -in.
14. What is the function of apron web doffing?
15. What is the purpose of auto leveler used in carding m/c?
16. Write any two popular manufacturers in carding m/c?
17. What is the aim of drawing?
18. What is the importance of draft distribution?
19. What is the importance of roller weighting system?
20. Name the different types of drafting system used in draw frame.

**PART B.**

Marks 5 x 12 = 60

Note : **Answer all Questions**

**21. A** With a neat sketch explain the working of multi mixer.

**OR**

**B** With a neat sketch explain the working of ERM cleaner.

**22. A** What are the salient features of the modern blow room? Explain.

**OR**

**B** What are the lap defects? Give their causes and remedies.

**23. A** Explain the passage of material through the carding with a neat figure.

**OR**

**B.** Give the card settings for different grades of cotton with figure.

**24. A** What are the developments in licker-in region? Explain.

**OR**

**B** With a neat sketch explain the apron web doffing device in a card.

**25. A** Explain with a neat sketch about a passage of material through draw frame.

**OR**

**B** With a neat sketch explain the RSB drafting system.



**III SEMESTER**  
**16032 YARN MANUFACTURE I**  
**MODEL QUESTION PAPER– 2**

Time – 3 Hours

Max.Marks – 75

**PART A.**

Marks 15 x 1 = 15

**Note:** Answer any 15 questions

1. What are the types of ginning machines?
2. What is homogeneous mixing?
3. Name the beaters used in blow room for opening and cleaning of cotton?
4. What is scutcher?
5. What is the function of pneumatic conveyers?
6. What is the purpose of using metal detectors in blow room?
7. What is the importance of auto lap doffing?
8. Write the popular manufacturer name in blow room line?
9. What is striping action?
10. Where the carding action takes place at carding?
11. What is the importance of grinding?
12. What is the chute feed system?
13. Write the developments in carding region?
14. Write the advantages of apron doffing?
15. What are the principles of auto leveler?
16. What is the importance of dust extraction in carding system?
17. How draft achieved in drawing?
18. What is roller setting in draw frame?
19. Write any one main advantage of polar drafting?
20. What is short term variation?

**PART B.**

Marks 5 x 12 = 60

Note : **Answer all Questions.**

**21. A.** Explain the working of unifloc with a neat figure.

**OR**

**B.** With an aid of a neat sketch explain the working of step cleaner.

**22. A.** Write short notes on i) Distributors ii) pneumatic conveyers iii) condensers

**OR**

**B.** Explain with a neat sketch about working of auto lap doffing in scutcher.

**23. A.** Explain with a neat sketch on the function of different parts of carding m/c

**OR**

**B.** What are the defects in card sliver and give their causes and remedies.

**24. A** Explain the modern developments in licker in zone.

**OR**

**B.** Explain the Automatic waste extraction system in carding with neat figure.

**25. A.** Explain with a neat figure the functions of different parts of draw frame.

**OR**

**B.** With an aid of neat sketch explain the working of polar drafting system.



**DIPLOMA IN TEXTILE TECHNOLOGY/  
TEXTILE TECHNOLOGY (SANDWICH)**

**L - SCHEME**

**2011 - 2012**

**FABRIC MANUFACTURE I**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : TEXTILE TECHNOLOGY

Course Code : 1063

Subject Code : 26033

Semester : III Semester

Subject Title : FABRIC MANUFACTURE – I

### TEACHING AND SCHEME OF EXAMINATION

No of weeks per semester: 16

Subject Title	Instructions		Examination			
	Hours /Week	Hours /Semester	Marks			Duration
Fabric Manufacture – I	5 Hrs	80 Hrs	Internal Assessment	Board Examination	Total	
			25	75	100	

### Topics and Allocation of Hours:

Sl.No	Topic	Time (hrs.)
1	Warp Winding and Weft Winding	16
2	Warping and Sizing	16
3	Loom – Primary Motions	16
4	Loom - Secondary and Auxiliary Motions	16
5	Drawing-in, Denting & Calculations	16
Total		80

**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.

**26033 FABRIC MANUFACTURE – I**  
**DETAILED SYLLABUS**

Contents: Theory

UNIT	NAME OF THE TOPIC	HOURS
1	<p><b>WARP AND WEFT WINDING</b></p> <p><b>Warp Winding:</b> Brief study of Sequence of Process in Weaving Preparatory - Objects of Warp Winding Definition - Angle of wind, Angle of cone and No. of wind. Tensioning Devices – Types- Different types of knots. Yarn Clearers - Types - Mechanical &amp; Electronic Clearers. Knot factor, Clearing efficiency - Splicing – Types – Salient features of spliced yarn - Passage of material through Fully Automatic Winding Machine. Package Faults - Causes and Remedies.</p> <p><b>Weft Winding:</b> Objects of Weft Winding – Advantages of Rewound Weft Over direct weft – Passage of material through high speed Automatic Pirn Winder - Bunch &amp; its necessity.</p>	16
2	<p><b>WARPING &amp; SIZING:</b></p> <p><b>Warping:</b> Objects - Passage of material through High Speed Beam Warping Machine - Types of Creels - Electrical Warp Stop Motion - Salient features of Modern Warping Machine - Concept of Computerized Sectional Warping.</p> <p><b>Sizing:</b> Objects – Different types of Sizing ingredients and their functions - Size Pick-up - Factors affecting Size Pick-up - Moisture Control - Stretch Control - Temperature Control - Size Level Control - Yarn Migration and its effect- Environmental and Safety Aspects in Sizing - Passage of material through Multi Cylinder Sizing Machine - Single End Sizing - Beam defects - Causes &amp; remedies.</p>	16
3	<p><b>LOOM - PRIMARY MOTIONS</b></p> <p><b>Introduction to Weaving</b> - Passage of Material through Power loom - Right hand and Left hand looms and Shuttles.</p> <p><b>Shedding-</b> Objects of Shedding - Positive &amp; Negative Shedding - Brief Study of Over and Under Motions - Types of Sheds – Different type of Tappets /Cams -Working of Negative tappet shedding mechanism-Early Shedding and Late Shedding-Easing motions.</p> <p><b>Picking</b> - Objects of Picking - Types - Working of Cone over Picking Mechanism -Early &amp; Late Picking - Shuttle Checking Devices - Working of Under Picking Mechanism - Comparison of over pick and under pick mechanism.</p>	16

Unit	Name of the Topic	Hours
3	<b>Beat-up Mechanism</b> - Object - Eccentricity of Sley's Motion – Factors affecting Eccentricity	
4	<p><b>LOOM - SECONDARY AND AUXILIARY MOTIONS</b></p> <p><b>Take up motions</b> : Objects - Types - Working of Seven Wheel Take up Motion - Anti-Crack Motion - Working of Positive Continuous Take up Motion.</p> <p><b>Let-off Motion:</b> Objects - Types - Working of Negative let-off Motion - Control of Warp Tension - Oscillating back rest and its function.</p> <p><b>Weft fork Motion:</b> Objects - Types - Brief study of Side &amp; Centre Weft Fork Motion.</p> <p><b>Warp Protecting Mechanism:</b> Objects – Types – Brief study. of Loose Reed – Brief study. of Fast Reed.</p> <p><b>Other mechanisms:</b> Functions of Brake Motion, Fly Wheel, Lease Rods, Healds, Reeds, and Temples - Types and their uses.</p>	16
5	<p><b>DRAWING-IN, DENTING AND CALCULATION</b></p> <p><b>Drawing-in &amp; Denting:</b> Objects - Leasing, Knotting and Pinning – Objects. Droppers - Types and their uses.</p> <p><b>Yarn numbering systems</b> : Different Yarn Numbering System(Tex, Denier, <math>N_e</math>, <math>N_m</math> and <math>N_f</math>) - Merits &amp; Demerits, Conversion of Count from one system to another, Doubled and Plied Yarn Calculation.</p> <p><b>Preparatory calculations</b> : Calculation pertaining to speed, Efficiency and Production of Warp Winding, Weft Winding, Warping and Sizing.</p>	16

**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, Lancaster, basel , UK	2001
2	Modern Preparation and Weaving Machinery	A.Ormerod	Butterworths , London	1983
3	Weaving machines, mechanisms and management	Talukdar , Sriramulu, Ajonkar	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



### III Semester

## 26033 FABRIC MANUFACTURE- I MODEL QUESTION PAPER-1

Time : 3 hrs

Max marks 75

### PART A.

Marks 15 x 1 = 15

**Note:** Answer any 15 questions

1. Mention the different types of yarn clearers.
2. Define the angle of wind
3. What is "Bunch"?
4. What is number of wind?
5. What is single end sizing?
6. State the factors influencing Size pick up.
7. Give any three objectives of warping
8. What are the types of creels used in modern warping machine?
9. What is negative shedding?
10. Give any two factors affecting sley eccentricity.
11. What do you understand about Left hand & Right hand looms?
12. What are the types of sheds?
13. State the function of oscillating backrest.
14. State the purpose of Anti – crack motion.
15. Write the types of wrap protecting mechanism
16. What are the functions of brake motion?
17. Convert 40s English count into French count
18. Define Tex system.
19. What is denting purpose?
20. Define English Cotton count system.

### PART B.

Marks 5 x 12 = 60

**Note :** Answer all Questions

- 21. A** Explain the Passage of material through a fully automatic winding machine with a neat sketch..

**OR**

- B** Explain in detail about fully automatic pirn winding machine with a neat sketch.

- 22. A** Explain in detail the Passage of material through high speed beam warping machine.

**OR**

- B** Explain with a neat sketch the working of a multi cylinder sizing machine.

- 23. A** With neat sketch explain the negative tappet shedding mechanism.

**OR**

**B.** Explain in details the working of a cone over pick mechanism with a neat sketch.

**24. A** Explain the working of seven wheel take-up mechanism.

**OR**

**B** With a neat sketch explain the Working of positive continuous take up motion.

**25. A** The weight of sized warp beam is 120 Kgs. Each beam contains 1600 meters of sized warp whose count before sizing was 40` s Ne. If the total number pf ends the warp is 4400; calculate the following.

1. Weight of unsized yarn on a beam in kgs.
2. Weight of oven dry size on the warp in a beam
3. Percentage of size pickup
4. Count of sized yarn.

**OR**

**B** Calculate the production in kgs of cone winding department with the following particulars.

No.of m/c	= 1	Time	= 8 hrs
No.of drums/ m/c=	120	Efficiency	= 85%
Drum speed	= 1600rpm	Count	= 20s
Drum dia	= 3 1/8 inch	Slippage	= 6%

### III Semester

## 26033 FABRIC MANUFACTURE- I

### Model Question Paper-2

Time : 3 hrs

Max marks 75

#### PART A.

Marks 15 x 1 = 15

**Note:** Answer any 15 questions

1. What is clearing efficiency in cone winding?
2. What are the different types of splicers used in warp winding?
3. What are the objects of cone winding?
4. What are the objects of weft winding?
5. What are the objects of sizing process?
6. State any two safety aspects followed in sizing.
7. What do you understand about yarn migration in sizing?
8. What is stretch in sizing?
9. What are the objects of shedding?
10. What is early shedding?
11. What are the functions of shuttle checking devices?
12. What are the objects of beat up mechanism?
13. What are the objects of weft fork mechanism in a loom?
14. State any two types of temples used in plain power loom.
15. What are the objects of warp protecting mechanism?
16. How do you control warp tension in weaving?
17. Define denier system.
18. State any two merits of indirect yarn numbering system.
19. What are the objects of drawing-in?
20. What are the different types of droppers used in weaving?

#### PART B.

Marks 5 x 12 = 60

Note : **Answer all Questions.**

- 21. A** Explain the different types of Tensioning devices and yarn clearers used

in cone winding machine.

**OR**

**B** Explain the different types of package faults occurred in cone winding machine with its remedies.

**22. A** Explain Salient features of Modern Warping Machine.

**OR**

**B.** Explain the following control system used in modern sizing machine.

i) Moisture control

ii) Temperature control

iii) Size level control

iv) Stretch control

**23. A** With a neat sketch explain the Passage of Material through plain power loom

**OR**

**B** With a neat sketch explain the working of side lever under picking mechanism..

**24. A** With a neat sketch explain the working of negative let-off motion.

**OR**

**B** Explain the functions of brake motion, fly wheel, lease rods, healds, reeds, and temples

**25. A** 6,48,000 meters of warp have to be warped in 6 hrs. If the actual production of the super speed warping machines is 600 meters / minute and the efficiency is 80%. Calculate the no of machines required to prepare the warp.

**OR**

**B** A sized beam contains 4000 ends and 1500 meters length of warp. The count of yarn before sizing is 40 s . The count if yarn after sizing is 38 s . Calculate the weight of total yarn before and after sizing. Also calculate the percentage size pick up.



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**FIBRE IDENTIFICATION PRACTICAL**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY  
Course Code : 1060  
Subject Code : 26034  
Semester : III Semester  
Subject Title : FIBRE IDENTIFICATION PRATICAL

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			
	Hours /Week	Hours /Semester	Marks			Duration
FIBRE IDENTIFICATI ON PRATICAL	4 Hrs	64 Hrs	Internal Assessment	Board Examination	Total	
			25	75	100	

#### 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.

**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.

**ALLOCATION OF MARKS**

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

### **LIST OF EXPERIMENTS WITH 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.



## **MODEL QUESTIONS FOR THE BOARD PRACTICAL EXAMINATIONS**

1. Examine the longitudinal views of the given natural fibres (cotton, silk, wool and jute) by means of a microscope.
2. Examine the longitudinal views of the given synthetic fibres (viscose rayon, nylon, polyester and acrylic) by means of a microscope.
3. Determine the mean twist in the given continuous multifilament yarn and its CV %
4. Examine the solubility of the given natural fibres (cotton, silk, wool and jute) in suitable solvents.
5. Examine the solubility of the given synthetic fibres (viscose rayon, nylon, polyester and acrylic) in suitable solvents.
6. Identify the given natural fibres (cotton, silk, wool and jute) by the burning tests
7. Identify the given synthetic fibres (cotton, silk, wool and jute) by the burning tests.
8. Determine the blend proportions of the given spun yarns (P/C, P/V).
9. Determine the blend proportions of the given fabric (P/C, P/V).
10. Determine the mean linear density of the given monofilament synthetic yarns.
11. Determine the mean linear density of the given multifilament synthetic yarns.
12. Determine the mean 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 – 4
6. Wrap reel – 1
7. Single Yarn tensile strength tester – 1
8. Conical flask – 20
9. Test tube – 20
10. Different types of fibres and bleanded fabrics.



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**YARN MANUFACTURE I PRACTICAL**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

**L-SCHEME**  
**(Implements from the Academic year 2011-2012 onwards)**

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY  
 Course Code : 1060  
 Subject Code : 26035  
 Semester : III Semester  
 Subject Title : YARN MANUFACTURE – I PRACTICAL

**TEACHING AND SCHEME OF EXAMINATION:**

No. of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			Duration
	Hours/ Week	Hours/ Semester	Marks			
YARN MANUFACTURE – I PRACTICAL	6	96	Internal Assessment	Board Examination	Total	3 Hrs
			25	75	100	

**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.

**GUIDELINES:**

- All the fourteen 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.

**ALLOCATION OF MARKS**

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

## **COMPLETE LIST OF EXPERIMENTS IN DETAIL**

### **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, Axi - flow Cleaner, Mono cylinder, 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.

## MODEL QUESTIONS FOR THE BOARD PRACTICAL EXAMINATIONS

1. Estimate the speed and settings of Hopper bale breaker.
2. Estimate the speed and settings of Axi - flow cleaner.
3. Estimate the speed and settings of Mono cylinder.
4. Estimate the speed and settings of E.R.M. cleaner.
5. Estimate the production of scutcher per day of 8 hrs from the data available in the machine.
6. Estimate the speeds and draft calculation of the carding machine.
7. Calculate Actual Draft and Machine Draft in carding machine from the given data.
8. Calculate the draft change wheel for a given lap hank to produce the required hank of Sliver in a card.
9. Set the card to process short staple cotton.
10. Set the card to process medium staple cotton.
11. Set the card to process long staple cotton.
12. Estimate the production of the card per day from the data available in the machine.
13. Draw the gearing plan of the Draw frame and calculate a. Draft between  
a) Intermediate Rollers      b) Total draft    and    c) Draft constant
14. Draw the gearing plan of Draw Frame and calculate    a) Front roller Speed  
b) Production per day of 8 hours [assuming the hank delivered]  
c) Tension Draft      and Creel draft.
15. Calculate the draft change wheel for a given sliver hank to produce the required hank of sliver in a draw frame.
16. Set the draw frame to process long, medium and short staple cottons.

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

### **Blow room, Carding and Draw frame**

Material :- Blow room laps, cans of carding sliver

### **Blow room line with the following equipments:**

1. Hopper bale breaker - 1
2. Axi- flow cleaner - 1
3. Mono cylinder - 1
4. E.R.M. Cleaner - 1
5. Scutcher - 1

### **Carding:**

- 6 Carding machine – 1

### **Drawing:**

- 7 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
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



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**FABRIC MANUFACTURE I PRACTICAL**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

**Course Name : TEXTILE TECHNOLOGY**

Course Code : 1063

Subject Code : 26036

Semester : III Semester

Subject Title : FABRIC MANUFACTURE - I PRACTICAL

### **TEACHING AND SCHEME OF EXAMINATION:**

No of weeks per semester: 16 weeks

Subject	Instruction		Examination			
	Hours/Week	Hours/Semester	Internal Marks	Board Exam	Total	Duration
FABRIC MANUFACTURE - I PRACTICAL	6	96	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.



## **GUIDELINES:**

- All the sixteen 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 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.

## **ALLOCATION OF MARKS**

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

## THIRD SEMESTER

### 26036 FABRIC MANUFACTURE - I PRACTICAL

#### LIST OF EXPERIMENTS WITH OBJECTIVES:

##### **Cone Winding**

To Draw the Passage of material.

To Set the Slub catcher and Tensioner for specific counts.

To Sketch the gearing . broken thread stop motion and anti ribboning device.

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 reduction 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 mechanism with timing and settings.

To Dismantle and assemble the various parts of the Fast reed 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.

## **LIST OF EQUIPMENT**

1. High speed Cone winding machine. – 1
2. Automatic 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

### III SEMESTER

#### 26036 FABRIC MANUFACTURE - I PRACTICAL

##### MODEL QUESTION PAPER

1. Draw the Passage of material through a cone winder and set the Slub catcher and Tensioner for specific counts (20s, 40s & 60s).
2. Sketch the gearing plan of a High speed cone winder and calculate the drum shaft speed. Calculate the Production per drum per hour in kgs.
3. Draw the diagram of the broken thread stop motion and anti-ribboning device. Set them for correct working.
4. Draw the Passage of material through a Pirn winder. Calculate the spindle speed and Production per spindle per hour in kgs.
5. Draw the diagram of the bunch building mechanism and find out the functions of automatic devices in the automatic pirn winder.
6. Draw the Passage of material through a Sectional warping machine and find out the functions of spilt reed & winding drum.
7. Draw the reduction gear plan and Heck-box traverse in the sectional warping machine and calculate the number of sections, revolutions of each section, drum speed, beaming speed and production.
8. Dismantle and assemble the various parts of the Tappet shedding mechanism with timing and settings.
9. Dismantle and assemble the various parts of the Cone over pick mechanism with timing and settings.
10. Dismantle and assemble the various parts of the Under pick mechanism with timing and settings.
11. Dismantle and assemble the various parts of the 7 wheel take-up motion with timing and settings. Calculate the dividend.
12. Dismantle and assemble the various parts of the negative let-off mechanism with back rest settings.
13. Dismantle and set the various parts of the Loose reed mechanism for proper working.
14. Dismantle and set the various parts of the Fast reed mechanism for proper working.
15. Dismantle and set the various parts of the shuttle box of an over pick loom with reed alignment for the given shuttle.
16. Dismantle and set the various parts of the Side weft-fork mechanism for proper working



**COMMON TO ALL BRANCHES**

**L - SCHEME**

**2011 - 2012**

**COMPUTER APPLICATIONS PRACTICAL**

**DIRECTORATE OF TECHNICAL EDUCATION**

**GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : COMMON TO ALL BRANCHES  
Subject Code : 20001  
Semester : III Semester  
Subject Title : COMPUTER APPLICATIONS PRACTICAL

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			
	Hours /Week	Hours /Semester	Marks			Duration
COMPUTER APPLICATIONS PRACTICAL	4 Hrs	64 Hrs	Internal Assessment	Board Examination	Total	
			25	75	100	

### **RATIONALE:**

The application of Computer knowledge is essential to 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, analyzing the data with charts manipulation of databases and presentation of documents with audio visual effects in a computer.

The learning of internet provides students with unprecedented opportunities to obtain information engage in discussion and liaise with individuals, organizations and groups world-wide. It provides the latest tools and technologies in helping the students to fetch better employment.

### **OBJECTIVES:**

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

- Understand the Windows operating systems
- Familiarize and customize the desktop
- Use the different facilities available in the word processor
- Analyze the data sheet
- Create and manipulate the database
- Prepare PowerPoint presentation
- Understand Internet concepts and usage of e-mail

#### **GUIDELINES:**

- All the eighteen experiments given in the list of experiments should be completed and all the experiments should included for the end semester practical examination.
- The end semester practical examination question paper contains two questions-the first question from section-I and the second question from section-II. Each question carries 35 marks and viva voce carries 5 marks.
- The computer systems should be 1:2 ratio for practical classes

#### **ALLOCATION OF MARKS**

##### 1. Internal Assessment – 25 Marks

DESCRIPTION	MARKS ALLOTTED
Record with Printout	10
Assignment	5
Attendance	5
Model Examination	5
Total	<b>25 MARKS</b>

##### 2. Board Examinations – 75 Marks

Content	Max. Marks	
	Section I	Section II
Writing steps	15	15
Execution of exercise	15	15
Result with Printout	5	5
Viva voce	5	
Total	<b>75 Marks</b>	

## LAB EXERCISES

### SECTION – I

#### WINDOWS

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Introduction- History of Windows- screen saver and monitor resolution – Wallpaper setting- Folder manipulation – properties of a folder – Recycle bin – Short cuts – Sorting Folder – Switching between Application – 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.
3.
  - a. Copying files into CD/DVD
  - b. Switching between applications
  - c. Making the taskbar wider and hiding the taskbar
  - d. Recording and saving an audio file
  - e. Set/Change the date and time.

#### WORD PROCESSING

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Introduction – Menus – Tool bar – Create – Edit – Save – Alignment – Font Size – Formatting – Tables – Fill Colors – Mail Merge – Page Setup - Preview – Water marking – Header – Footer – Clip art.



## Exercises

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

ABC PVT. LTD.

Chennai

Production Summary of various Units in every Quarter

Unit	Product - ID	Jan-Mar	Apr-june	July-Sept.	Oct-Dec.
Unit - I	56	234.	50	74	125
Unit - II	142	236	126	175	251
Unit - III	213	541	216	60	43
Unit - IV	125	243	127	250	136
Unit - V	143	152	138	80	45

- Arrange Unit name as left align and other columns as right align.
  - Use doubled Border to the Summary Title and fill with 15% gray colour.
  - Implement merging and splitting two or more cells
  - Give alternative fore colour for columns.
  - Print the above table.
5. 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.
6. 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

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Introduction – Menus – Tool bar – Create – Edit – Save – Formatting cells – Chart wizard – Fill Colors – Creating and using formulas – Sorting – Filtering.

### Exercises

7. 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  $\geq 70\%$   
First Class if Total  $\geq 60\%$  and  $< 70\%$   
Second Class if Total  $\geq 50\%$  and  $< 60\%$   
Pass if Total  $\geq 35\%$  and  $< 50\%$   
Fail otherwise  
Create a separate table based on class by using auto filter feature.
8. 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 colour and lowest donation with red colour. The table should have a heading.
9. Prepare line, bar and pie chart to illustrate the subject wise performance of the class for any one semester.

## SECTION – II

## DATABASE

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

### Exercises

10. 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
11. Prepare a payroll for employee database of an organization with the following details:  
Employee Id, Employee name, Date of Birth, Department and  
Designation, Date of appointment, Basic pay, Dearness Allowance,  
House Rent Allowance and other deductions if any.  
Perform simple queries for different categories.
12. Design a pay slip for a particular employee from the above database.

## **PRESENTATION**

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Introduction – Menus – Tool bar – Create – Edit – Save – Slide transition – Insert image – Hyper link – Slide numbers – View slide show with sound – Photo album – Clip art.

### **Exercises**

13. 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.
14. Create a Presentation on “Communication Skills” with three different slide transitions with sound effect.
15. Create a photo album in PowerPoint.

## **INTERNET**

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Introduction – Browsers – Open a website – Email: Send, receive and delete – Email with Attachments Google docs – Search Engines – Searching topics

### **Exercises**

16. 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.
17. Create a presentation on Google docs. Ask your friend to review it and comment on it. Use “Discussion” option for your discussions on the presentation.
18. Find out the direction and distance about road travel from Delhi to Agra using the Internet search. Also make a report of the Map and other details like place to stay and visit at Agra.

## MODEL QUESTION PAPER

Year / Sem: <b>II / III</b> Subject: <b>COMPUTER APPLICATIONS PRACTICAL</b> Code: <b>20001</b>	
Answer all the questions <b>Max.Marks:75</b>	
1	<b><u>Section - I</u></b> Prepare line, bar and pie chart to illustrate the subject wise performance of the class for any one semester.
2	<b><u>Section - II</u></b> Create an e-mail id and perform the following <ul style="list-style-type: none"><li>• Write an e-mail inviting your friends to your Birthday Party.</li><li>• Make your own signature and add it to the e-mail message.</li><li>• Add a word attachment of the venue route</li><li>• Send the e-mail to at least 5 of your friends.</li></ul>

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

#### SOFTWARE REQUIREMENTS

Operating System	Windows XP or Windows Vista or Windows 7 / Linux
Office Package	Microsoft office 2000 or Office 2003 or Office 2007/Open Office

#### HARDWARE REQUIREMENTS

Desktop Computer System with latest configuration	30 Nos
Power Backup (UPS)	10 KVA
Laser Printer	3 Nos

#### SAFETY PRECAUTIONS TO BE FOLLOWED BY STUDENTS

- Do not touch, connect or disconnect any plug or cable without teacher's permission
- Don't attempt to touch any live wires
- Systems should be shutdown properly after completion of work

**REFERENCES BOOKS:**

<b>TITLE</b>	<b>AUTHOR</b>	<b>PUBLISHER</b>	<b>Year of Publication</b>
Computer Applications Practical Manual	Dr.V.Karthikeyan Mr.D.Arulseivan	Learning Resource Centre, Thiagarajar Polytechnic College, Salem- 636 005	2012
Windows 7 in easy steps	Harshad kotecha	Tata McGrawHill	2011
A First Course in Computer 2003	Sanjay Sasena	Vikas Publications	2009
MS Office – 2003	Ramesh Bangia	Kanna Book Publication	2005
Introduction to Computers with MS-Office 2000	Alexis Leon & Mathews Leon	Tata McGraw-Hill	2002
Mastering Microsoft Office 2000	Gini Courter & Annette Marquis	BPB Publications	1999

## **IV SEMESTER**



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**BASIC ENGINEERING**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY  
Course Code : 1060  
Subject Code : 26041  
Semester : IV Semester  
Subject Title : BASIC ENGINEERING

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			Duration
	Hours /Week	Hours /Semester	Marks			
BASIC ENGINEERING	5 Hrs	80 Hrs	Internal Assessment	Board Examination	Total	3 Hrs
			25	75	100	

## Topics and allocation of hours

Unit	Topic	Time (hrs.)
1	Basics of Mechanical Engineering – I	16
2	Basics of Mechanical Engineering –II	16
3	Basics of Electrical Engineering	16
4	Basics of Electronics Engineering	16
5	Measuring Instruments and sensors	16
Total		80



**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.

## 26041 BASIC ENGINEERING

### DETAILED SYLLABUS

Contents : Theory

Unit	Name of the Topic	Hours
1	<p><b>Basics of Mechanical Engineering - 1</b></p> <p><b>Fuels</b> – Brief study only - Definition of fuel and Calorific Value of Fuel - Use of Steam for Textile Applications - Types of Boiler and fire tube and water tube.</p> <p><b>Suction and Pump</b> – Brief study- Principles of suction - Various applications of suction in Textile Industry - Pump-Definition and types - Construction and working of Reciprocating and centrifugal pump comparison</p> <p><b>Air Compressors and Humidification</b> – Brief study - Air compression – Definition Use of compressed air in Textile applications - Principles of Humidification and its importance in Textile Industry - Definition of absolute and relative humidity - Norms for maintaining - temperature, humidity in Textile mills - Air Compressors – Detailed study - Construction and working of a simple single stage reciprocating air compressor</p> <p><b>Air Conditioning and Bearings</b> –Brief study - Principles of air conditioning - Need and importance of bearing - Different types of bearings and their use in Textile Machines - Factors for selection of bearings - Detailed study Construction and working of a window type air conditioner Constructional details of Ball and Roller bearings</p>	16
2	<p><b>Basics of Mechanical Engineering –II</b></p> <p><b>Lubrication</b>-Brief study - Purpose of lubrication and types of lubrication systems Desirable qualities of a good lubricant - Detailed study - Study of Continuous lubrication methods: Gravity feed lubrication, Pressure feed Lubrication and oil bath Lubrication</p> <p><b>Clutches and Brakes</b> – Brief Study - Principle of working of a friction clutch Principle of working of a shoe brake - Different types of brakes, Application of brakes in Textile Machines - Difference between a clutch and a brake Construction and working of single plate friction clutch - Construction and working of Hydraulic brake - Construction and working of Pneumatic brake</p> <p><b>Transmission of motion and power</b> – Brief study - Different types of drives Brief study of flat, V belt and gear belt drives – merits and demerits Brief study of</p>	16

	<p>bush roller chain drive – advantages and disadvantages Brief study of spur, helical, double helical, bevel, worm and worm gear drives, pawl and ratchet drives – advantages and disadvantages Cams, different types of cams and followers - Applications of the above drives in textile machines</p> <p><b>Transmission of motion and power</b> – Detailed study - Need for variable speed drives in Textile machines - Working of step less cone pulleys and PIV drives for changing speed - Epicyclic gear train</p> <p><b>Workshop machines</b> –Brief study - Simple Lathe operations. Facing, Plain and taper turning, drilling - Study of Brazing, advantages of brazing - welding – types of welding</p> <p><b>Workshop machines</b> – Detailed study - Study of Oxy-acetylene gas welding – process and equipments used - Study of electric arc welding – process and equipments used - Study of a Lathe – simple line sketch, description and functions of the parts</p>	
3	<p><b>Basics of Electrical Engineering</b></p> <p><b>Basic ideas</b> –Brief study (No derivations or calculations involved) - Creation of a magnetic field around a current carrying conductor (statement only) – RH thumb rule - Electromagnetic induction – Faradays laws (statement only) – Fleming’s RH rule - Force on a current carrying conductor placed in a magnetic field – (statement only) – Fleming’s LH rule - Definition of electrical quantities: Voltage, current, power and resistance – Units of these quantities, Formula for calculation of electrical power and energy in a DC circuit</p> <p><b>Fundamentals of AC current</b> – Brief study (No derivations or calculations involved) Alternating current, frequency, Instantaneous and RMS - values, inductance, capacitance, impedance and phase difference in AC circuits - Power factor, disadvantages of low power factor, methods to improve power factor, true, apparent and reactive powers in AC circuits (Basic idea only, no calculations)</p> <p>Single phase and 3phase AC supply, advantages of 3 phase supply, star and delta connections, comparison of star and delta connections, comparison of and delta connections (Basic idea only, no calculations)</p> <p><b>Fundamentals of AC motors</b> – Brief study (No derivations or calculations involved) Principle of working of induction motors – types of induction motors – Necessity of starters for starting induction motors - Principle of working of transformer, parts of a single phase transformer, - Transformation ratio, step up and step down transformers (Basic idea only, no calculations)</p> <p><b>Electrical machines</b> – Detailed study - Constructional details and working of 3phase Induction motors - Study of starters for starting induction motors - Constructional details and working of single phase transformers.</p>	16

4	<p><b>Basics of Electronics Engineering</b></p> <p><b>Basic ideas</b> – Brief study - Definition of conductors, insulators and semi conductors (both intrinsic and extrinsic) - Electron emission, different types of electron emission Photoelectric emission, photoelectric effect, principle of working of photocells</p> <p><b>Semiconductor devices</b> – 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 diode and conduction through the diode for forward and reverse bias Connections - Use of diode as a rectifiers - Transistors – construction of PNP and NPN transistors,</p> <p><b>Semiconductor devices</b> – Detailed study - Working of Half wave and Full wave rectifiers, Bridge rectifiers - working of PNP and NPN transistors as signal amplifiers Use of photocells in textile testing</p> <p><b>Transducers</b> – Detailed study - Principle and working of strain gauges - Application of strain gauges in textile testing</p> <p><b>Transducers</b> – Detailed study - Principle and working of strain gauges - Application of strain gauges in textile testing</p>	16
5	<p><b>Measuring Instruments and Sensors</b></p> <p><b>Brief study</b> - Functions of sensors – Types – Application - Instruments used to measure Voltage, current, Power and energy</p> <p><b>Detailed study</b> - Importance of earthing, methods of earthing of Textile machines and equipments - Tendency of textile fibres to develop static charges during mechanical processing – methods and equipments used to eliminate / reduce the static charges - Temperature, Level, Flow, Pressure, Force and Humidity sensors - Voltmeter, Ammeter (moving coil and moving iron), Watt meter (dynamo meter type), Energy meter (Induction type)</p>	16

### 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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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
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

**IV SEMESTER**  
**16041 BASIC ENGINEERING**  
**MODEL QUESTION PAPER– 1**

Time – 3 Hours

Max.Marks – 75

**PART A.**

**Marks 15 x 1 = 15**

**Note:** Answer any 15 questions – All Question carry equal marks

1. Give four uses of compressed air in Textile Industry
2. Define Relative humidity.
3. Define the term 'Calorific value'
4. State the needs of Leasing
5. Name the different lathe operations
6. State the different types of gears.
7. Mention any four desirable qualities of a good lubricant
8. State the different types of followers
9. Define 'transformation ratio' of a transformer
10. Define Resistance
11. Define current
12. Define power factor
13. What is a 'hole' in a semiconductor?
14. Define electron emission
15. Define doping
16. What is reverse bias
17. Mention any two types of sensors?
18. Mention the instruments used to measure power and energy
19. What is importance of earthing?
20. How will you eliminate static-electricity?

**PART B.**  
Marks 5 × 12 = 60

Note : **Answer all Questions**

**21 A.** Explain the working of reciprocating pump with a neat sketch

**OR**

**B.** Explain with figures the construction and working of an air compressor

**22 A.** Briefly explain the different types of belt drives used in textile machines their Merits and demerits.

**OR**

**B.** Explain with figures the construction and working of a friction clutch.

**23. A.** i) Differentiate between 'star' and 'Delta' connections in A.C. circuits  
ii) Explain the need for starters for starting 3 phase induction motors

**OR**

**B.** Draw a line sketch of a single phase transformer showing the parts.  
Also explain its working principle.

**24 A.** i) What is a transducer? Mention the different types of transducers  
ii) Explain the construction, working and advantages of a bridge rectifier.

**OR**

**B.** Explain the working principle and types of transistors.

**25. A.** Explain the construction and working of energy meter

**OR**

**B.** Explain any two type's sensors.

**IV SEMESTER**  
**16041 BASIC ENGINEERING**  
**MODEL QUESTION PAPER– 2**

Time – 3 Hours

Max.Marks – 75

**PART A.**

Marks 15 x 1 = 15

**Note:** Answer any 15 questions

1. Define pump and mention the types.
2. Define air compressor.
3. Define fuel
4. Define absolute humidity
5. Mention any four purpose of lubrication
6. State two advantages of Bush-Roller chain drive.
7. What are the different types of drives?
8. State the different types of Cams
9. Define Voltage.
10. What is the true power?
11. Define frequency
12. What is the step-up transformer?
13. Define rectifier
14. What are the different methods of electron emission?
15. Define semi- conductor
16. What are forward bias?
17. Define energy
18. What is force sensor?
19. What is static electricity?
20. What is earthing



**PART B.**  
Marks 5 × 12 = 60

Note : **Answer all Questions**

**21 A.** Explain With neat sketch the construction and working of window type air Conditioner

**OR**

**B.** Explain the constructional details of ball and roller bearings.

**22 A.** Explain the construction and working of Hydraulic brake.

**OR**

**B.** Draw simple line sketch of lathe and explain different operation done on it.

**23 A.** Explain the construction and working of three phase induction motor.

**OR**

**B.** Explain star and delta connections with suitable sketches.

**24 A.** Explain the working of PNP and NPN transistors.

**OR**

**B.** Explain the working any two types of rectifiers.

**25 A.** Explain the construction and working of dynamometer type watt meter.

**OR**

**B. i)** Explain the importance of earthing and their methods 6

**ii)** Explain any two types of sensors. 6



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**YARN MANUFACTURE II**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY  
Course Code : 1060  
Subject Code : 26042  
Semester : IV Semester  
Subject Title : YARN MANUFACTURE -II

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			
	Hours /Week	Hours /Semester	Marks			Duration
YARN MANUFACTUR E -II	5 Hrs	80 Hrs	Internal Assessment	Board Examination	Total	
			25	75	100	

### Topics and allocation of hours:

Sl.No.	Topic	Time (hrs.)
1	Combing	16
2	Speed frame	16
3	Ring frame	16
4	Modern Ring Frame	16
5	Doubling. Reeling, Bundling and Baling	16
	<b>Total</b>	<b>80</b>

## 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 and all its important parts.
- 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.

## 20642 YARN MANUFACTURE - II

### DETAILED SYLLABUS

Contents : Theory

Unit	Name of the Topic	Hours
1	<b>Combing</b> Preparatory to Comber - Objects - Different process sequences in the preparation to the comber. Working of comber preparatory machines – Sliver lap, Ribbon lap and Super lap machines. Combing – Objects, Degree of combing - Passage of material - working of the Comber and Combing cycle. Determination of noil percentage and characteristics of combed yarn - Combing cycle - Comber settings - Nipper to detaching rollers - nipper to cylinder and top comb. Salient features of modern comber. Popular manufacturers of modern Combers.	16
2	<b>Speed frame</b> 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 SKF, WST Top arm drafting systems used on Speed Frames. Principles of winding – Flyer lead and bobbin lead - Functions of the cone drums - differential motion and builder mechanism - Salient features of modern speed frames. Defects in speed frame process - causes and remedies. Popular manufacturers of modern Speed Frames.	16
3	<b>Ring frame</b> Ring Frame - Objects and passage of material through the Ring frame. Functions of different parts of the Ring Frame – Study of umbrella creel and its advantages. Traverse motion for roving feed and its importance, Functions of Bottom and Top drafting rollers, aprons, cots, and spacers. Detailed Study of top arm drafting systems - SKF, WST and Lakshmi High Drafting systems, Rings and travelers. Study of high speed spindles and spindle inserts. Study of cop builds, ring rail movement, winding and binding coils, spindle driving systems. Study of working of building motion. Selection of top rollers, aprons, cots, spacers and their influence on yarn quality. Different types of rings and travelers. Running-in procedure for new Rings. Roller stand inclination and its effect on spinning tension.	16
4	<b>Modern Ring Frame</b> Salient features of modern Ring Frames. Special attachments such as automatic doffing, Link Coner, pneumafil and balloon control rings. Study of compact spinning system. Methods of driving - objects of Variable speed 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 twist, strength and count relationship. Twist factors adopted for different end uses such as warp, weft, hosiery and high twist yarns. Change places in ring frame. Popular manufacturers of modern Ring Frames.	16

Unit	Name of the Topic	Hours
5	<p><b>Doubling. Reeling, Bundling and Baling</b></p> <p><b>Doubling</b> - Objects and methods of doubling. Direction of twist in doubled yarn and its relation to single yarn. Balancing of twist and optimization of twist. Calculation of resultant counts. Study of Doubler winder, Passage of material through Doubler winder, cone feed and cheese feed, working and salient features of Two-for-one-Twister.</p> <p><b>Reeling:</b> Reeling - objects, types- straight and cross reeling, SHPR, DHPR, SHCR, DHCR reeling, their advantages and disadvantages. Study of working of 7 lea motion. Study of doffing mechanism.</p> <p><b>Bundling, Baling and Packing:</b> Objects of bundling and baling. Need for bundling weight correction and its importance. Packing - HDPE bag packing, Carton box packing, Pallet packing and packing checking procedures.</p>	16

**TEXT BOOKS:**

S.No	Title	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	Title	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 friars street Manchester M3 5 DR UK	1987

**IV SEMESTER**  
**26042 YARN MANUFACTURE - II**  
**MODEL QUESTION PAPER – 1**

Time – 3 Hours

Max.Marks – 75

**PART A.**

Marks 15 x 1 = 15

**Note:** Answer any 15 questions

1. What is combing?
2. What are the comber preparatory machines?
3. What is noil?
4. Write any one important characteristic of combed yarn?
5. What is the function of flyer?
6. What are the principles of winding?
7. Write any one function of building mechanism in fly frame?
8. What are the principles of winding?
9. How twist is introduced to the yarn in Ring frame?
10. What is the importance of traverse motion in a Ring frame?
11. What are the different types of cop builds?
12. Name the different types of Rings used in Ring frame?
13. Write any two salient features of modern Ring frames?
14. What is the function of Balloon control Rings?
15. What are the different methods of driving spindles in Ring frames?
16. What are the common defects in ring yarns?
17. What is doubling?
18. What is the object of two for one twister?
19. What is bundling?
20. What are the methods of packing?

**PART B.**

Marks 5 x 12 = 60

Note : **Answer all Questions**

- 21. A** Explain with a neat sketch about the working of sliver lap m/c.  
**OR**  
**B** With a neat sketch explain the passage of material through combing m/c.
- 22. A** Explain with a neat sketch about the SKF top arm drafting system  
**OR**  
**B** With an aid of neat sketch explain the differential mechanism.
- 23. A** Explain the passage of material through Ring frame with a neat figure.  
**OR**  
**B** Explain the function of building mechanism of Ring frame with a neat figure.
- 24. A** Explain with a neat sketches about the automatic doffing in Ring frame.  
**OR**  
**B** What are salient features of Ring frame explain?



**25. A** Explain the passage of material through doubler winder.

**OR**

**B** Explain 7 lea motion with neat figure.

**IV SEMESTER**  
**26042 YARN MANUFACTURE II**  
**MODEL QUESTION PAPER– 2**

Time – 3 Hours

Max.Marks – 75

**PART A.**

Marks 15 x 1 = 15

**Note:** Answer any 15 questions

1. What is happening during combing?
2. Why even number of passages is required between card and comber?
3. What is scratch combing?
4. What is the function of top comb?
5. What is the function of presser in a roving frame?
6. What is flyer leading system?
7. Write the function of condenser?
8. Give any two popular manufacturers of modern speed frame?
9. What is the function of traveler?
10. What are the different types of traverse motions?
11. What is the function of spacer?
12. What is binding coil?
13. What is the function of pneumafil in ring frame?
14. What is compact spinning?
15. What is twist factor?
16. What are the change placers in ring frame?
17. What are the different methods of doubling?
18. What is the necessity of doubler winder?
19. What are the different types of reeling?
20. What is the bundling weight correction?

**PART B.**

Marks 5 x 12 = 60

Note : **Answer all Questions**

**21. A** Explain with a neat diagram about the working of Ribbon lap m/c.

**OR**

**B** With an aid of neat sketch explain the cycle of combing

**22. A** Explain the passage of material through speed frame with a neat figure.

**OR**

**B** Explain the function of building mechanism in speed frame with a neat figure.

**23. A** Explain WST drafting system in RF with a neat figure.

**OR**

**B** Explain the functions of different parts of Ring frame with neat figure.

**24. A** Write short notes on i) Compact spinning ii) Balloon control Rings.

**OR**

**B** What are the common defects in Ring frame give their causes and remedies.

**25. A** Explain the working of two for one twister with a neat figure.

**OR**

**B** Write short notes on

i) Doffing mechanism in reeling

ii) Different methods of packing.



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**FABRIC MANUFACTURE II**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : TEXTILE TECHNOLOGY

Course Code : 1063

Subject Code : 26043

Semester : IV Semester

Subject Title : FABRIC MANUFACTURE - II

### TEACHING AND SCHEME OF EXAMINATION

No of weeks per semester: 16

Subject Title	Instructions		Examination			
	Hours /Week	Hours /Semester	Marks			Duration
FABRIC MANUFACTURE - II	5 Hrs	80 Hrs	Internal Assessment	Board Examination	Total	
			25	75	100	

### Topics and Allocation of Hours:

Sl.No	Topic	Time (hrs.)
1	Dobby mechanism	16
2	Jacquard mechanism	16
3	Multiple box and Terry motions	16
4	Automatic weaving	16
5	Synthetic Weaving & Loom calculations	16
Total		80

**RATIONALE:**

This subjects deals about the special mechanisms of power loom such as doobby, 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 machinerries and fabric costing in a weaving factory.

**OBJECTIVES:**

Unit-1 To know about various types of Dobby mechanism

Unit-2 To know about various types of Jacquard mechanisms

Unit-3 To study about multiple box motion & Terry motions

Unit-4 To study about Automatic looms, their advantages and the mechanisms available

Unit-5 To have knowledge about Synthetic and blended yarn weaving

To study loom calculations, costing and balancing of machinerries

## 26043 FABRIC MANUFACTURE - II

### DETAILED SYLLABUS

Contents: Theory

Unit	Name of the Topic	Hours
1	<p><b>Dobby mechanism</b>            Objects - Classification – Right hand and Left hand dobbies - Comparison between tappet and dobbie shedding - Brief study of single and double lift dobbies – Comparison of single lift and double lift dobbie – Working of Climax dobbie – Pegging - Jack missing - Working of Cam dobbie - Advantages of cam dobbie over lever dobbies – Brief study of electronic dobbie &amp; Cross border dobbie.</p>	16
2	<p><b>Jacquard mechanisms</b>            Objects - Classification – Principle of single lift jacquard - Working of Double lift double cylinder jacquard – advantages. Brief study of Cross border jacquard – Jacquard harness mounting - Norwich system and London system - tie-ups - types - casting out.            Working of Piano card cutting machine – Brief study of electronic card punching machine &amp; Electronic jacquard</p>	16
3	<p><b>Multiple box and Terry motions</b>            Multiple box motion: object - classification - Brief study of 2 x 1 drop box motion - Working of 4 x 1 drop box motion - card saving device - preparation of pattern chain for 4 x 1 drop box motion with and without card saving device. Brief study of Pick-at-will motion.            Terry motion: - object - principles of terry motion - Working of loose reed terry motion (any one type) - adjustment of pile length - fringing motion.</p>	16
4	<p><b>Automatic Weaving</b>            Advantages of automatic looms over non-automatic looms - Different type of automatic looms. (shuttle and pirn change looms).- Warp stop motion – Object- Principles of mechanical and electrical Warp stop motions - Self threading shuttle - Weft feeler - midget weft feeler - photo electric weft feeler – Working of Cop changing mechanism - Working of Positive warp let-off motion - Comparison of Fabric quality in plain power loom with Automatic loom. Fabric defects – Causes &amp; Remedies.</p>	16
5	<p><b>Synthetic Weaving &amp; Loom calculations</b>            Synthetic Weaving general loom requirement for synthetic and blended yarn weaving - Common Fabric Defects - causes and remedies.            Loom calculations Calculation pertaining to speed, production and efficiency of loom – Heald and Reed calculations. Cover factor calculation            Balancing of machineries from winding to loom shed for 200 looms capacity. Determination of Ex-Mill price of a meter of fabric.</p>	16

**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



**III SEMESTER**  
**26043 FABRIC MANUFACTURE-II**  
**Model Question Paper-1**

Time : 3 hrs

Max marks 75

**PART A.**

Marks 15 x 1 = 15

**Note:** Answer any 15 questions

1. What are the objects of dobby?
2. What type of shed is formed in double lift dobby?
3. What do you understand about pegging of lattice?
4. State any two electronic dobbies available in market.
5. What are the objects of jacquard?
6. What type of shed is formed in double lift double cylinder jacquard?
7. State any two types of tie-ups in jacquard loom.
8. What is casting out?
9. What are the objects of multiple box motions?
10. State the purpose of pick-at-will mechanism?
11. What are the objects of terry mechanism?
12. What is the need for fringing motions?
13. State any two types of automatic looms.
14. What is the need for weft feelers?
15. State any four warp way fabric defects which occur in an automatic loom?
16. What are the functions of a self threading shuttle?
17. State any two fabric defects which occur in synthetic weaving.
18. What is reed count?
19. What is fabric cover factor?
20. What is ex-mill price?

**PART B.**

Marks 5 × 12 = 60

21. A With a neat sketch explain the working of a climax doobby

OR

B Explain the working of a cam doobby with a neat sketch

22. A With a neat sketch explain the working of double lift double cylinder jacquard.

OR

B Describe the working of piano card cutting machine with neat sketch.

23. A With a neat sketch explain the working of 4 X 1 drop box mechanism.

OR

B Give the plan for preparation of pattern chain for 4 X1 drop box mechanism without card saving device for the given pattern.

WHITE	BLUE	RED	GREEN	Total No of Picks
24				168
	32			
		08		
			40	
		16		
	48			

24. A With a neat sketch explain the working of cop changing mechanism.

OR

B Explain about the fabric defects occurred in weaving with causes and remedies.

25. A It is decided to run a loom shed with the following particulars

- Number of looms - 48
- PPI in the fabric - 14 (Bandage cloth)
- EPI in the fabric - 18
- No. of shifts / day - 3
- Loom shed efficiency - 85%
- Average loom speed - 180 PPM
- Sift duration - 8hrs

Calculate the following:

Production in meters/shift/loom.

Production in meters/day of the loom shed.

Total number of fabric rolls produced/day, each of 2000 meters long.

OR

B Explain about synthetic weaving and blended yarn weaving. Give the general loom requirements for each type.

**III SEMESTER**  
**26043 FABRIC MANUFACTURE-II**  
**Model Question Paper-2**

Time : 3 hrs

Max marks 75

**PART A.**

Marks 15 x 1 = 15

**Note:** Answer any 15 questions

1. Define Right Hand Dobby.
2. What are types of Dobby mechanisms?
3. What type of shed is formed in single lift dobby?
4. What is the principle of working of electronic dobby?
5. Write the name of card cutting machine
6. What are the types of jacquard?
7. What is the object of harness in a jacquard loom?
8. State the function of comber board.
9. State any two types of multiple box motions.
10. What are the two types of terry motion?
11. How many warp beams are required to produce a terry fabric? Why?
12. Why a drop box mechanism is required in weaving?
13. What are the two important mechanisms make a shuttle loom to auto loom?
14. What is the object of warp stop motion.
15. Define positive let off motion.
16. State the function of cop changing mechanism.
17. State any four weft way fabric defects.
18. State any two fabric defects occurred in blended yarn weaving.
19. Give the formulae for cloth cover factor.
20. How many heald shafts are required for producing drill cloth.

**PART B.**

Marks 5 x 12 = 60

Note : **Answer all Questions**

- 21. A i)** Compare the single lift dobby with double lift dobby.
- ii) What are the advantages of cam dobby over lever dobby?

**OR**

- B i)** Briefly explain the working of electronic dobby.
- ii) Briefly explain the working of cross border dobby

- 22. A i)** Briefly explain the harness mounting
- ii) Briefly explain casting out and tie-ups in jacquard.

**OR**

**B** i) Briefly explain the working of electronic jacquard

ii) Briefly explain the working of electronic card punching machine.

**23. A** Give the plan for preparation of pattern chain for 4 \* 1 drop box mechanism with card saving device for the given pattern.

WHITE	BLUE	RED	GREEN	Total No of Picks
40				158
	30			
		20		
			20	
		12		
	36			

**OR**

**B** Explain with neat sketch the working of loose reed terry mechanism.

**24. A** i) Explain the advantages of automatic looms over non automatic plain power looms.

ii) Compare the fabric quality of automatic loom with non automatic loom.

**OR**

**B** Explain the working of positive let off mechanism with neat sketch.

**25. A** Assuming necessary data to balance the various machineries required to set up a weaving mill with 200 auto looms.

(or)

**B** Calculate the Ex-mill price of a meter of fabric. Assume the necessary data for the calculation.



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**ELEMENTARY TEXTILE DESIGN**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY  
Course Code : 1060  
Subject Code : 26044  
Semester : IV Semester  
Subject Title : ELEMENTARY TEXTILE DESIGN

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			
	Hours /Week	Hours /Semester	Marks			Duration
ELEMENTARY TEXTILE DESIGN	4 Hrs	80 Hrs	Internal Assessment	Board Examination	Total	
			25	75	100	

### Topics and allocation of hours:

Sl.No.	Topic	Time (hrs.)
1	ELEMENTS OF WOVEN DESIGN	13
2	PLAIN WEAVES AND TWILL WEAVES:	13
3	SATEEN , CREPE AND HONEYCOMB WEAVES	13
4	HUCK-A-BACK, MOCK – LENO & BEDFORD CORD WEAVES	13
5	KNITTED STRUCTURES	12
Total		64

**RATIONALE:**

To enhance the practical knowledge and skill to analyse a given sample of cloth. This will help the students to acquire knowledge about the design, draft and peg plan and estimate the loom requirements to weave the cloth.

**Guidelines:**

- All the 12 cloth samples given in the list should be completed for the end semester practical exam.
- In order to develop best skills every students should be provided with counting glass
- 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.

**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.

## 26044 ELEMENTARY TEXTILE DESIGN

### DETAILED SYLLABUS

Contents : Theory

Unit	Name of the Topic	Hours
1	<p><b>ELEMENTS OF WOVEN DESIGN</b></p> <p>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.</p>	13
2	<p><b>PLAIN WEAVES AND TWILL WEAVES:</b></p> <p>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.</p>	13
3	<p><b>SATEEN , CREPE AND HONEYCOMB WEAVES</b></p> <p>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.</p> <p>Honey comb weaves - its characteristics, ordinary honey comb weaves, brighten honey comb weaves - uses of honey comp weaves</p>	13
4	<p><b>HUCK-A-BACK,MOCK-LENO&amp;BEDFORDCORD WEAVES</b></p> <p><b>Huck-a-back weaves</b> – ordinary Huck–a-back weaves – Modified Huck-a-weaves – Uses</p> <p><b>Mock-leno weaves</b> - Perforated fabrics - Uses Bedford cord – plain faced <b>Bedford cords</b> – Wadded Bedford cords - crepon Bedford cords – Twill faced Bedford cords – Uses. Welts and pique weaves – Ordinary Welts structures – Weft wadded welts – fast back welts – waved piques</p>	13



Unit	Name of the Topic	Hours
5	<p><b>KNITTED STRUCTURES</b></p> <p><b>Weft knitted Structures</b> – Definition of the terms - face loop, back loop, needle loop, sinker loop, stitch length, texture. Representation of weft knitted structures – symbolic and diagrammatic representation of plain 1 x 1 rib, 1 x 1 interlock - stitch notation of La coste, pair Isle, milano rib, French pique, ponda-di-roma structures.</p> <p><b>Warp knitted Structures</b> – Definition of <b>open</b> lap, closed lap, Over lap, Under lap. Lapping diagram of Full Tricot, Lock Knit, Reverse lock knit, Satin, Queen cord and Shark slim</p>	12

**TEXT BOOKS:**

S.No	Title	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	Title	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

**IV SEMESTER**

**26044 ELEMENTARY TEXTILE DESIGN**

**MODEL QUESTION PAPER– 1**

Time – 3 Hours

Max.Marks – 75

**PART A.**

Marks 15 x 1 = 15

**Note:** Answer any 15 questions

1. Define draft.
2. Define pegplan.
3. What do you mean by denting?
4. What are the types of drafting?
5. What are the derivatives of plain weave?
6. What are the derivatives of twill weave?
7. Mention any two cloths woven lay plain weave.
8. What do you mean by drill cloth?
9. What is the main characteristic of honey comb weave?
10. Mention any two characteristics of crepe weave.
11. What are the differences between ordinary and brighten honey comb weave?
12. Mention any two characteristics of sateen weave.
13. Differentiate bed ford cord from welts
14. What are the uses of Huck-a-back weaves?
15. What are the uses of mock-leno fabric?
16. What is the purpose of Wadded threads in Bed ford cord weaves?
17. Define face loop.
18. Define needle loop.
19. Name any two weft knitted structure.
20. Name any two warp knitted structure.

**PART B.**

Marks 5 x 12 = 60

Note : **Answer all Questions**

**21. A.** Construct the draft and peg plan for the design given.

*		*	*	*		*	
	*		*		*		
		*		*			
			*				
		*		*			
	*		*		*		
*		*	*	*		*	
	*	*	*	*	*		*

**OR**



**IV SEMESTER**

**26044 ELEMENTARY TEXTILE DESIGN**

**MODEL QUESTION PAPER– 2**

Time – 3 Hours

Max.Marks – 75

**PART A.**

Marks 15 x 1 = 15

**Note:** Answer any 15 questions

1. What is the normal denting rate?
2. What are the systems of drafting?
3. What do you mean by repeat unit?
4. What do you mean by skip draft?
5. What are the characteristic of plain weave?
6. What are the characteristics of twill weave?
7. What is the minimum numbers of heald shaft to weave a mat weaves?
8. What is the numbers of heald shafts required to weave a drill cloth?
9. Compare sateen with satin. Give example
10. What do you mean by sateen weave?
11. What are the uses of crepe weaves?
12. How will you find out the longest float in a Brighton honey comb weave?
13. What are the characteristics of mock-leno weave?
14. What are the characters of bed ford cord weave?
15. What are the applications of Huck-a-back weave?
16. What are the characters of welts structure?
17. Define face loop.
18. Define stitch length.
19. Define texture.
20. Define open lap.

**PART B.**

Marks 5 x 12 = 60

Note : Answer all Questions

**21. A.** construct the design from the draff and pegplan

			*			*				*					
		*					*				*			*	*
	*				*			*							
*				*				*			*	*			

Draft

		*	*
	*	*	
*	*		
*			*

pegplan

**OR**

**B.** Construct the draft from the given design and pegplan.

		*	*	*				*	*	*				*
	*		*	*			*		*	*			*	*
	*	*			*		*	*			*		*	*
*	*	*				*	*	*				*	*	*
*	*		*			*	*		*			*	*	
*			*	*		*			*	*		*		

Draft

			*	*	*
		*	*	*	
	*	*	*		
*	*	*			
*	*				*
*				*	*

pegplan

- 22.A.** Give the design, draft and pegplan for the following weaves,  
 (i) 4 \* 2 irregular warp rib                      (ii) 3 \* 1 irregular weft rib  
 (iii) 4 \* 2 irregular mat                              (iv) 4 \* 4 weft rib

**OR**

- B.** Give the design, draft and pegplan for the following weaves.  
 (i) waved twill with 2/2                              (ii) Herring bone twill  
 (iii) Enongated twill                                      (iv) Broken twill using 4/4 twill

**23. A** Give two examples for simple development of sateen weaves

**OR**

- B.** Give design, draft and pegplan of the following  
 (i) Crepe weave    (ii) Honey comb weave

**24. A.** Give design, draft, pegplan and denting order of

- (i) Devan Huck-A-Back                              (ii) Modified Huck-A-Back

**OR**

**B** Give the design, draft and pegplan & enterlacement diagram of a fast back welt Structure

**25. A.** Give stitch notation of the following weft kitted structure

- (i) French pique    (ii) Milano file

**OR**

**B.** Give the lapping diagram of the following warp knitted structure.

- (i) Full tricot    (ii) Shark skin.



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY / SANDWICH**

**L - SCHEME**

**2011 - 2012**

**YARN MANUFACTURE II PRACTICAL**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY  
Course Code : 1060  
Subject Code : 26045  
Semester : IV Semester  
Subject Title : YARN MANUFACTURE – II PRACTICAL

### TEACHING AND SCHEME OF EXAMINATION:

No. of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			Duration
	Hours/ Week	Hours/ Semester	Marks			
YARN MANUFACTURE – II PRACTICAL	6	96	Internal Assessment	Board Examination	Total	3 Hrs
			25	75	100	

### **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.

### **GUIDELINES:**

- All the sixteen 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.

### **ALLOCATION OF MARKS**

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



## **COMPLETE LIST OF EXPERIMENTS IN DETAIL**

### **Objectives**

#### **COMBER**

- To practice the various settings of the Comber machine such as
- Unicomb to Nippers and Nippers to Top comb
- To calculate the Noils extraction percentage in Comber.
- To calculate the production and efficiency of the Comber..

#### **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 mechanism 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 mechanism 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 mechanism 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 for producing SHPR / SHCR or DHPR / DHCR leas.
- To study the working of the doffing mechanism of the Reeling Machine.

## MODEL QUESTIONS FOR THE BOARD PRACTICAL EXAMINATIONS

1. Estimate the production of the given comber per shift of A hours with delivery hank B and efficiency C% for the present wheels.
2. Estimate the drafts and draft constant in the given Speed frame and calculate the production per shift of 8 hours with delivery hank A and efficiency B% for the present wheels
3. Estimate twist per inch and twist constant in the given speed frame for the present wheels and calculate 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
4. Estimate the time taken to produce A kg. of roving per spindle in the speed frame when the delivery hank is B for the present wheels.
5. Set the Building motion unit of the given speed frame for the given roving hank.
6. Estimate coils per inch and lay constant of the speed frame for the present wheels.
7. Estimate draft, intermediate draft and draft constant of the given ring frame for the present wheels.
8. Calculate suitable draft change wheel of the given ring frame to spin count of yarn A from hank of roving B for the present wheels.
9. Estimate the twist constant and TPI in the given Ring spinning / Doubling frame for the present wheels.
10. Calculate the production of the given Ring frame with A spindles, spinning yarn count of B with a twist multiplier of C and efficiency D%.
11. Estimate time taken to produce A kg. of yarn count B from C spindles of the given ring frame at D% efficiency.
12. Do spindle and lappet gauging for 4 spindles on either side of the Ring / Doubling frame
13. Calculate the traveler speed in meter per second and traveler lag at the full and bare bobbin conditions and hence estimate the variation in twist in ring / doubling frame.
14. Change the direction of twist in spinning frame / doubling frame.
15. Set the Building motion unit of the given Ring / Doubling frame for the processing of the given roving hank.
16. Study the Reeling machine and produce A kg. hanks of B count yarn.

## **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. Comber	– 1	2 Speed frame	– 1
3 Ring frame	– 1	4 Doubling frame	– 1
5 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 get 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.



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**FABRIC MANUFACTURE II PRACTICAL**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : TEXTILE TECHNOLOGY  
Course Code : 1063  
Subject Code : 26046  
Semester : IV Semester  
Subject Title : FABRIC MANUFACTURE – II PRACTICAL

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject	Instruction		Examination			
			Assessment Marks			
FABRIC MANUFACTURE – II PRACTICAL	Hours/ Week	Hours/ Semester	Internal Marks	Board Exam	Total	Duration
	6	96	25	75	100	3 Hrs

### **RATIONALE:**

To enhance practical knowledge about the dobbie , 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.

## **GUIDELINES:**

- All the sixteen 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.

### **ALLOCATION OF MARKS**

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

## IV SEMESTER

### 26046 FABRIC MANUFACTURE - II PRACTICAL

#### LIST OF EXPERIMENTS WITH OBJECTIVES

##### **Dobby**

To dismantle and assemble the various parts of the Dobby mechanism.

To set the dobbie for correct working with timing and setting.

To peg the lattice for LH dobbie for the given weaves

To peg the lattice for RH dobbie 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.

To draw a simple Jacquard Design and to prepare a Punched Card.

##### **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

## **LIST OF EQUIPMENT**

Dobby loom	- 1 no
Jacquard loom	- 1 no
Terry loom	- 1 no
Drop box loom	- 1 no
Automatic loom	- 1 no
Card Punching machine-	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 get 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,

8. Should wear safe foot wear, preferably shoes.
9. Should keep their shirts tucked in.
10. Should do settings on the machines only after the mains supply is switched off.
11. Should inform the staff in charge immediately if they find any unsafe condition in the machine.
12. Should not wear loose shirts.
13. Should not open the doors and covers while the machine is running.
14. Should not start running a machine without doing regular safety checks and closing the safety doors.



## IV SEMESTER

### 26046 FABRIC MANUFACTURE – II PRACTICAL

#### MODEL QUESTION PAPER

1. Dismantle and assemble the various parts of the Dobby mechanism and set it for correct working with timing and setting.
2. Peg the lattice for LH dobbie for the given weaves: Honey Comb and Mock Leno Weave.
3. Peg the lattice for RH dobbie for the given weaves: Huck-a-back and Herring Bone Twill
4. Dismantle and assemble the various parts of the Drop box mechanism for correct working with timing and setting.
5. Prepare a chain of metallic cards for weaving a given pattern without card saving device in a drop box loom.
6. Prepare a chain of metallic cards for weaving a given pattern with card saving device in a drop box loom.
7. Draw the diagram of a jacquard and understanding the working of a Jacquard mechanism  
with functions of various parts.
8. Draw timing diagram of a jacquard for various actions.
9. Draw a simple Jacquard Design and preparing of a Punched Card.
10. Dismantle and assemble the various parts of Terry mechanism with timing and setting.
11. Dismantle and assemble the parts of mechanical weft feeler in cop changing mechanism of an automatic loom with timing and setting
12. Dismantle and assemble the various parts of the Cop changing mechanism with timing and setting.
13. Dismantle and assemble the various parts of a Warp stop motion for correct working.
14. Dismantle and assemble the various parts of positive let-off motion with timing and setting.
15. Collect the Quality particulars of Commercial Fabrics like Long Cloth, Casement, Cambric, Voile, Mull and Poplin and analyze them.
16. Calculate the Cost of fabric per meter for the given Striped / Checked fabric.



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**ELEMENTARY TEXTILE DESIGN PRACTICAL**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : TEXTILE TECHNOLOGY  
Course Code : 1063  
Subject Code : 26047  
Semester : IV Semester  
Subject Title : ELEMENTARY TEXTILE DESIGN PRACTICAL

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			Duration
	Hours /Week	Hours /Semester	Marks			
ELEMENTARY TEXTILE DESIGN PRACTICAL	4	64	Internal Assessment	Board Examination	Total	3Hrs
			25	75	100	

### **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.

### **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

## ALLOCATION OF MARKS

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

## IV SEMESTER

### 26047 ELEMENTARY TEXTILE DESIGN PRACTICAL

#### LIST OF EXPERIMENTS WITH 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.

## 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.
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.

## IV SEMESTER

### 26047 ELEMENTARY TEXTILE DESIGN PRACTICAL

#### MODEL QUESTION PAPER

1. Analyse the given piece of cloth and find out the design, draft, peg plan, Ends per inch, picks per inch, warp Count, weft Count, Weigh of warp and weft yarn, crimp percentage in warp and weft yarn, Reed count, Cloth cover, Cost per unit area( m<sup>2</sup>or Yd<sup>2</sup>) and Loom requirement.
2. Analyse the given piece of knitted cloth for the following
  - Course per unit length, Wales per unit length
  - Yarn count
  - Course length, loop length
  - No of feeders used
  - Weight of fabric (GSM)
  - Costing (GSM)
  - Type of structure
  - machine requirement
3. Analyse a given plain weave cloth sample, find out the cloth particulars and estimate the cost per metre of the fabric.
4. Analyse a given twill weave cloth sample, find out the cloth particulars and estimate the cost per metre of the fabric.
5. Analyse a given drill cloth sample, find out the cloth particulars and estimate the cost per metre of the fabric.
6. Analyse a given satin weave cloth sample, find out the cloth particulars and estimate the cost per metre of the fabric.
7. Analyse a given crepe weave cloth sample, find out the cloth particulars and estimate the cost per metre of the fabric.
8. Analyse a given honey comb weave cloth sample, find out the cloth particulars and estimate the cost per metre of the fabric.
9. Analyse a given huck-a-back weave cloth sample, find out the cloth particulars and estimate the cost per metre of the fabric.
10. Analyse a given mock leno weave cloth sample, find out the cloth particulars and estimate the cost per metre of the fabric.
11. Analyse a given Bedford cord weave cloth sample, find out the cloth particulars and estimate the cost per metre of the fabric.
12. Analyse a given single jersey knitted cloth sample, find out the cloth particulars and estimate the cost per metre of the fabric.

13. Analyse a given 1 X 1 Rib knitted cloth sample, find out the cloth particulars and estimate the cost per metre of the fabric.
14. Analyse a given 1 X 1 interlock knitted cloth sample, find out the cloth particulars and estimate the cost per metre of the fabric.



# V SEMESTER



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**TEXTILE TESTING**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY  
Course Code : 1060  
Subject Code : 26051  
Semester : V Semester  
Subject Title : TEXTILE TESTING

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			Duration
	Hours /Week	Hours /Semester	Marks			
TEXTILE TESTING	5	80	Internal Assessment	Board Examination	Total	3 Hrs
			25	75	100	

### Topics and allocation of hours:

Sl.No.	Topic	Time (hrs.)
1	MOISTURE AND ITS RELATIONS IN TEXTILES	16
2	FIBRE TESTING	16
3	YARN TESTING:	16
4	FABRIC TESTING:	16
5	STATISTICAL QUALITY CONTROL	16
Total		80

## **RATIONALE:**

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

## **OBJECTIVES**

To know the relationship of moisture with textile and related terms & definition.,

To understand principle and the methods of determining the moisture in the atmosphere and the textile materials.

To know the properties and their importance of fibre which is the raw material for all the textile goods.

To understand the principles and the methods of testing the fibres to their basic characteristics.

To know the properties and their importance of the yarn.

To understand the principles and the method of testing the yarn to determine the 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.

Scheme of Instruction and Examination

## 26051 TEXTILE TESTING

### DETAILED SYLLABUS

Content : Theory

Unit	Name of the Topic	Hours
1	<b>MOISTURE AND ITS RELATIONS IN TEXTILES</b>  <b>Humidity and its importance in Textiles</b> - Definitions of Absolute Humidity - Relative Humidity - Standard Testing atmospheric condition.- Measurement of Humidity - Wet and dry bulb Hygrometer - Definition of Moisture content - Moisture regains - 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	16
2	<b>FIBRE TESTING</b>  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)	16
3	<b>YARN TESTING</b>  Yarn count – Determination of yarn count by auto sorter and Beasley 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 tester – CRE,CRL and CRT - Working of single yarn strength tester - 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 classmate.	16
4	<b>FABRIC TESTING</b>  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	16

5	<b>STATISTICAL QUALITY CONTROL</b>  Classification and Tabulation of Data - Frequency Diagram – Histogram and frequency polygon. Measures of Central tendency - Mean, Median, Mode. Measures of deviation - Mean Deviation, Percent Mean Deviation, Standard Deviation and Co-efficient of variation. Normal distribution curve and its properties. Tests of significance - 't' test for Mean only  Quality Control Chart -Construction of control chart for Averages and Ranges.	16
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**TEXT BOOKS:**

S.No	Title	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	Title	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

## V SEMESTER

### 26051 TEXTILE TESTING

#### MODEL QUESTION PAPER– 1

Time – 3 Hours

Max.Marks – 75

#### PART A.

Marks 15 x 1 = 15

**Note:** Answer any 15 questions

1. Define the term-Moisture regain.
2. What is the use of hygrometer?
3. Mention few importance of testing fibres
4. Define the standard testing atmosphere
5. Define the term-Effective length.
6. What does the fineness of fibre denote?
7. Define maturity ratio
8. What do you mean by Fibre Quality Index
9. Define yarn count
10. Mention few importance of CSP
11. What do you mean by CRE and CRL
12. Define periodic variation
13. Mention few importance of crimp
14. Define fabric handle
15. What do you mean by abrasion pilling
16. Define drape
17. What do you know about Frequency Diagram
18. Define standard deviation
19. Mention few properties of normal distribution curve
20. What is the use of quality control chart

#### PART B.

Marks 5 × 12 = 60

**Note :** Answer all Questions

- 21 A.** How would you measure the relative humidity using Wet & Dry bulb hygrometer?  
Explain with a neat sketch.

**OR**

- B.** With a sketch, explain the method of estimating moisture content and regain by using conditioning Oven.

- 22 A.** Explain with a sketch, the method of measuring fibre fineness by using micrometre Instrument.

**OR**

- B.** Describe the sodium hydroxide swelling method of determining fibre maturity

- 23. A.** With a neat sketch, explain the method of estimating single yarn twist by twist contraction method.

**OR**

- B.** Describe with a sketch, the method of assessing yarn evenness by using yarn appearance boards.

- 24 A.** With a neat sketch, explain the working of Shirley crimp tester

**OR**

- B.** Explain with a neat sketch the working of crease recovery tester



25. A. A filament yarn was tested for strength before and after a chemical. treatment  
In each case, ten specimens were tested and the following results were obtained:

	Untreated filament	Treated filament
Number of tests	10	10
Mean strength(gm)	295	271
Standard deviation	8	12

Is there sufficient evidence to show that the chemical treatment has

already weakened the filament? Given:  $t = 2.101$  at 5% level  
 $= 2.878$  at 1% level

**OR**

- B. Construct the control charts for mean and range for the following lea strength result and state your conclusion.

Lea strength in lbs

Cone no.	1	2	3	4
1	34.5	33.0	33.5	34.0
2	30.5	36.0	33.5	33.0
3	33.0	33.0	35.5	37.0
4	39.5	37.0	33.5	32.5
5	32.0	34.5	35.5	32.0
6	33.0	35.0	34.5	34.0
7	31.0	35.0	34.5	34.0
8	30.0	30.0	32.5	34.0
9	31.5	33.0	36.0	32.5
10	32.5	35.0	34.5	32.5

**V SEMESTER**  
**26051 TEXTILE TESTING**  
**MODEL QUESTION PAPER– 2**

Time – 3 Hours

Max.Marks – 75

**PART A.**

Marks 15 x 1 = 15

**Note:** Answer any 15 questions

1. Define the term moisture content
2. Mention few importance of humidity in textiles
3. Define absolute humidity
4. What do you mean by relative humidity
5. Mention few importance fibre length
6. What are the importance of fibre fineness
7. What do you mean by AFIS
8. What is meant by maturity of cotton fibres?
9. What are the importance of RKM
10. Write the principle of Instron tester
11. What are the importance of yarn strength
12. What do you mean by CRT
13. Define the term crimp.
14. Define the term serviceability
15. Mention few importance of fabric tensile strength
16. Define fabric air resistance
17. Define the term mean.
18. What is the purpose of frequency polygon
19. Define term median
20. What is the use of tests of significance

**PART B.**

Marks 5 × 12 = 60

**Note : Answer all Questions**

**21.A.** Explain how would you estimate moisture content and regain by using Conditioning oven

**OR**

- B. i)** Explain the effect of moisture regain on fibre properties  
ii) Mention standard regain values for cotton, viscose, silk, wool, nylon and polyester

**22. A.** With a neat sketch explain the method of measuring fibre length using Baer sorter

**OR**

- B.** With a neat sketch, explain the method of determining fibre strength by using stelomete

**23. A.** Explain with a neat sketch the working of single yarn strength tester of pendulum lever type.

**OR**

**B.** With a neat sketch and explain the working of uster evenness tester.

**24.A.** Draw a neat sketch and explain the working of stiffness tester.

**OR**

**B.** Give the different methods of preparing samples for fabric tearing strength tests.

**25. A.** Two filament yarns, each of same counts were r-tested for single yarn Strength and the following result were obtained.

	YARN-I	YARN-II
No.of.test	30	30
Mean strength(gm)	284	282
Standard deviation	10.98	20.49

Is there a real difference between the strength?  
Given:  $t=1.96$  at 5% level,  $t = 2.58$  at 1% level

**OR**

**B.** Draw mean and range chart from the following data collected from a mill and state your conclusion.

Sample no.	1	2	3	4	5	6	7	8	9	10
Sample mean	12.8	13.1	13.5	12.9	13.2	14.2	12.1	15.5	13.9	14.2
Sample range	2.1	3.1	3.9	2.1	1.9	3.0	2.5	2.8	2.5	2.0

Given:  $n=4$   $A2=0.729$   $D3=0$   $D4=2.282$



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**TEXTILE WET PROCESSING**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY  
Course Code : 1060  
Subject Code : 26052  
Semester : V Semester  
Subject Title : TEXTILE WET PROCESSING

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			Duration
	Hours /Week	Hours /Semester	Marks			
TEXTILE WET PROCESSING	5	80	Internal Assessment	Board Examination	Total	3 Hrs
			25	75	100	

### Topics and allocation of hours:

Sl.No.	Topic	Time (hrs.)
1	Preparatory and Bleaching Process	16
2	Dyeing Process	16
3	Printing Process	16
4	Finishing Process	16
5	Quality and pollution Control	16
Total		80

## **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 various 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

## 26052 TEXTILE WET PROCESSING

### DETAILED SYLLABUS

Content : Theory

Unit	Name of the Topic	Hours
1	<p><b>Preparatory and Bleaching Process</b></p> <p>Impurities present in grey cotton and cotton fabric - sequence of wet processing treatments - singeing - Object - Gas Singeing Machine for woven fabric with line diagram - desizing - Object - Continuous desizing method and its merits - Enzyme desizing - Scouring - Object - Process of caustic scouring using high pressure kier.</p> <p><b>Bleaching</b> – Object – Hydrogen Peroxide Bleaching- Continuous scouring and bleaching using J Box with line diagram –Optical Brightening Agent treatment</p>	16
2	<p><b>Dyeing Process</b></p> <p>Classification of dyes based on their mode of application - Dyeing of cotton with Reactive dyes and vat dyes - Dyeing of wool with basic dyes - Dyeing of silk with basic dyes - Dyeing of Polyester with Disperse dyes - Dyeing machines - Working of Soft flow jet dyeing machines - HTHP Beam dyeing machine.</p>	16
3	<p><b>Printing Process</b></p> <p>Comparison between dyeing and printing - Styles and methods of printing - Ingredients of printing paste.</p> <p>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 -Brief style of Batik style on cotton with reactive dyes -Screen preparation - Flat bed screen printing machine - Rotary screen printing machine - curing machine -steamer</p>	16
4	<p><b>Finishing Process</b></p> <p>Finishing Treatment - Advantages - Finishing of cotton fabric with stiffeners (Starch, PVA, Polyvinyl Acetate) -softeners (Anionic, Cationic and non-ionic)- wrinkle free finish-Sanforizing – silicon finishing - Mercerisation - Advantages – -chainless mercerising machine - calendering - Hot air stenters-compacting</p> <p>Special finishes - Brief study on antimicrobial finish - UV protective finish - water repellent finish - Flame retardant finish</p>	16

5	<p><b>Quality and pollution Control</b></p> <p>Importance of Quality Control - Determination of wash fastness - ISO Tests, Wet and Dry rubbing fastness - Light fastness testing to day light only - computer colour matching.</p> <p>Importance and need of environment protection - Air, water and noise pollution - Constituents of air, water and noise pollutants with respect to textile industry.</p> <p>Brief study on effluent treatment with a suitable plant layout (Process flow chart only).</p> <p>Brief study on eco-friendly processing - List of banned dyes and chemicals, Eco labels - Brief study of ISO4000 standards</p>	16
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TEXT BOOKS:

S.No	Title	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	Title	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

**V SEMESTER**  
**26052 TEXTILE WET PROCESSING**  
**MODEL QUESTION PAPER– 1**

Time – 3 Hours

Max.Marks – 75

**PART A.**

Marks 15 x 1 = 15

**Note:** Answer any 15 questions

1. Mention the impurities Present in Grey Cotton.
2. What is singeing?
3. What is the object of De-sizing?
4. Define Full Bleaching.
5. What is Hot brand Reactive Dye?
6. Define insoluble Dyes.
7. Mention the steps involved in Vat dyes with cotton.
8. Give the advantages of Soft flow Dyeing machines.
9. Give the principle of Discharge Printing.
10. Mention the ingredients of Printing Paste?
11. What is the Object of Curing?
12. What is Batik Printing?
13. What is Wrinkle free finish?
14. Give the advantages of calendaring.
15. What is compacting?
16. What is Mercerization Treatment?
17. Give the Object of Wash Fastness Test.
18. Write the Primary Treatment in Effluent Treatment.
19. List out few names of Banned chemicals.
20. What are different type of Environment pollution?

**PART B.**

Marks 5 × 12 = 60

Note : **Answer all Questions**

- 21.A.** Explain the continuous de-sizing process with a neat sketch. 12
- OR**
- B.** Explain in detail the Hydrogen Peroxide Bleaching 12
- 22. A.** Explain the Dyeing procedure of cotton with Reactive dyes 12
- OR**
- B.** Explain with neat sketch the working of soft flow Jet Dyeing machine. 12
- 23. A.** Explain the printing of cotton with pigments in direct style. 12
- OR**
- B.** Explain with neat sketch the working of Rotary printing machine. 12
- 24.A.** Explain in detail the working of chainless fabric mercerizing machine. 12
- OR**
- B.** Write notes on i) Anti microbial finish 6  
ii) Water repellent finish 6
- 25.A.** Elaborate on the importance and need of Environment protection. 12
- OR**
- B.** Explain the Effluent treatment process with suitable plant layout. 12

**V SEMESTER**  
**26052 TEXTILE WET PROCESSING**  
**MODEL QUESTION PAPER– 2**

Time – 3 Hours

Max.Marks – 75

**PART A.**

Marks 15 x 1 = 15

**Note:** Answer any 15 questions

1. What are the uses of OBA?
2. Mention the advantages of enzyme De-sizing.
3. What is Scouring?
4. Give the merits of continuous process.
5. Define soluble dyes.
6. Give the classification of Reactive Dyes.
7. Write the After Treatment for Cotton Reactive Dyeing .
8. What is HTHP Dyeing?
9. What is the use of Thickener in Printing Paste?
11. Give the advantages of Steamer.
12. Compare Dyeing & Printing.
13. What is sanforization?
14. List the advantages of Mercerization.
15. Define Flame Retardant Finish.
16. What is UV protective finish?
17. Write the importance of Quality control in Wet Processing.
18. What are the advantages of computer color matching?
19. What is Eco label?
20. Give the Constituents of Air Pollution.

**PART B.**  
Marks 5 × 12 = 60

Note : **Answer all Questions**

**21.A.** Explain with neat sketch the working of Gas singeing machine? 12

**OR**

**B.** Explain with neat sketch the scouring of cotton fabric in a high pressure kier. 12

**22 A.** Explain the method of dyeing cotton with Vat dye. 12

**OR**

**B.** Explain with neat sketch the working of HTHP Beam dyeing machine 12

**23 A.** Explain the method of Printing Polyester with Disperse Dyes in Direct style. 12

**OR**

**B.** Explain with neat sketch the working of Flat bed screen Printing. 12

**24. A.** Write notes on i) Wrinkle free finish      ii) Stiffener & softener Finish      6 + 6

**OR**

**B.** Explain with neat sketch the method of finishing fabric using Hot air Stenters 12

**25 A.** How will you determine the color fastness of dyed fabric to washing and Rubbing?

Explain. 12

**OR**

**B.** Write notes on i) Eco friendly Processing      ii) ISO 14000 Standards      6 + 6



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**ADVANCED TEXTILE DESIGN**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY  
Course Code : 1060  
Subject Code : 26053  
Semester : V Semester  
Subject Title : ADVANCED TEXTILE DESIGN

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			
	Hours /Week	Hours /Semester	Marks			Duration
ADVANCED TEXTILE DESIGN	4	64	Internal Assessment	Board Examination	Total	
			25	75	100	

### Topics and allocation of hours:

Sl.No.	Topic	Time (hrs.)
1	FIGURING WITH EXTRA THREADS	13
2	BACKED CLOTHS	13
3	DOUBLE CLOTHS	13
4	FIGURED PIQUES AND LENO STRUCTURE	13
5	PILE STRUCTURES	12
Total		64

**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.



## 26053 ADVANCED TEXTILE DESIGN

### DETAILED SYLLABUS

Content : Theory

Unit	Name of the Topic	Hours
1	<p><b>FIGURING WITH EXTRA THREADS:</b></p> <p>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 - figuring with two extra warps – Stitching by means of special picks. Extra weft figuring - figuring with one extra weft - clipped spot effects – Stitching by means of special ends - figuring with two extra wefts.</p>	13
2	<p><b>BACKED CLOTHS:</b></p> <p>Principles of constructions - weft backed cloths – Reversible weft backed Weaves – Methods of weft backing standard twill and Mat weaves – warp backed cloths - Reversible warp backed Weaves - Methods of warp-backing standard weaves – Interchanging figured backed fabrics – Interchanging weft backed fabrics - Interchanging warp backed fabrics. Backed cloths with wadding threads – Weft backed and warp wadded design - Warp backed and weft wadded design - imitation backed cloths - imitation weft backing - imitation warp backing.</p>	13
3	<p><b>DOUBLE CLOTHS:</b></p> <p>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 double cloth - Interchanging double plain cloth. Triple cloth – systematic</p> <p>Construction of treble cloth.</p>	13
4	<p><b>FIGURED PIQUES AND LENO STRUCTURE:</b></p> <p>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.</p> <p>Structures.</p> <p>Leno structure:- the principle of leno structure , basic sheds of leno weaving - leno weaving with flat steel drop with an eye.</p>	13

5	<p><b>PILE STRUCTURES:</b></p> <p>Terry pile structures - formation of the piles , terry weaves – 3 pick , 4 pick , 5 pick and 6 pick weaves - terry ornamentation - stripe and check dobby designs , figured terry pile fabrics.</p> <p>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.</p> <p>Velvet – All over or continuous pile structure - all the piles over each wire.</p>	12
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**TEXT BOOKS:**

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

**V SEMESTER**

**26052 ADVANCED TEXTILE DESIGN**

**MODEL QUESTION PAPER– 1**

Time – 3 Hours

Max.Marks – 75

**PART A.**

Marks 15 x 1 = 15

**Note:** Answer any 15 questions

1. State any two advantages of extra warp figuring.
2. State any two advantages of extra weft figuring.
3. State any one method of disposing of surplus extra thread.
4. What is the different between ordinary figuring of fabric and figuring with extra material.
5. What are the repeat sizes to imitate 1:1 backed cloth with 3/3 twill weave?
6. What is the purpose of producing backed cloths?
7. What is a weft backed cloth?
8. What is a warp backed cloth?
9. Define double cloth
10. When the stitches are formed the in self stitched double cloth?
11. How many serious of warps and wefts are there in a treble cloth.
12. How many serious of warps and wefts are there in a warp wadded double cloth.
13. Define bottom doup.
14. How are figmed piques classified?
15. What is a fast back pique?
16. What are the types of basic sheds formed in leno weaving?
17. Define top doup.
18. What is a corduroy?
19. What is a Velvet?
20. How many fast beat rips are there in a 4 pick terry structure?

**PART B.**

Marks 5 × 12 = 60

Note : **Answer all Questions**

- 21. A.** Take a suitable motif with two colours and convert it into extra weft figuring with 1 and 1 combination.

**OR**

- B.** Take a motif and convert it into extra warp spot effect with 1 and 1 combination.

- 22. A.** Construct a warp wadded weft backed design. Take your own weave and combination.

**OR**

- B.** Construct imitation warp backed and weft backed with 2/2 twill weave to imitate 1:1 and 2:1 combination.

- 23. A** Give design, draft and peg plan of a center warp stitched double cloth.

**OR**

**B.** Give the design and draft of a weft wadded double cloth.

**24. A.** Take your own motif and explain the principle of construction of 4 pick fast back figured pique.

**OR**

**B.** Explain the method of construction of a leno weave with a design, draft and pegplan.

**25. A.** Construct the design of a corded velveteen and give its interlacement diagram.

**OR**

**B.** How will you construct a check design with terry weave? Give example.

**V SEMESTER**

**26052 ADVANCED TEXTILE DESIGN**

**MODEL QUESTION PAPER– 2**

Time – 3 Hours

Max.Marks – 75

**PART A.**

Marks 15 x 1 = 15

Note: Answer any 15 questions

1. Mention any two disadvantages of extra warp figuring.
2. Mention any two disadvantages of extra weft figuring.
3. Which ground weave is frequently used in a extra warp cloth?
4. For which type of fabric, the surplus extra material is allowed to float under the fabric?
5. What are the repeat sizes to imitate 2:1 backed cloth with 2/2 twill weave?
6. What type of weave is selected for backed weave?
7. What is the use of backed cloths?
8. How many series of warp & weft are there in a warp backed weft wadded cloth?
9. What are the purpose of introducing wadded threads in double cloths?
10. What do you mean by centre warp stitched double cloth?
11. What do you mean by centre weft stitched double cloth?
12. Define treble cloth?
13. Define top doup.
14. Define loose back piques.
15. Define plain shed with repeat to leno weaving.
16. Define open shed in leno weaving.
17. How many loose and fast beat ups are there in a 4 pick terry weaving?
18. What are the uses of terry clothes?
19. How will you change the pile length of terry cloth?
20. Give the design of a 3 pick terry weave.

**PART B.**

Marks 5 x 12 = 60

Note : **Answer all Questions**

- 21. A.** Take a suitable motif for ladies dress material and convert it into extra weft figuring with one and one combination.

**OR**

- B.** Take a suitable motif with two colours and convert it into extra warp figuring with 2 and 2 combination.

- 22 A.** Construct the design of a weft wadded warp backed cloth.

**OR**

- B.** How will you construct interchanging weft backed cloth? With example show principle of construction.

- 23.A.** Give design and draft of wadded double cloth.

**OR**

**B.** Give design, draft and peg plan of center weft stitched double cloth.

**24. A.** Explain with neat diagrams the sheds formed in leno weaving with steel doup.

**OR**

**B.** How will you construct check and stripe pattern in terry pile. Explain with examples.

**25. A.** Construct the design of a corded velveteen and give its interlacement diagram

**OR**

**B.** Give the design and interlacement diagram of a continuous pile Velvet structure.



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**ADVANCED TEXTILE MANUFACTURE**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**



## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY  
Course Code : 1060  
Subject Code : 26071  
Semester : V Semester  
Subject Title : ELECTIVE - I ADVANCED TEXTILE MANUFACTURE

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			
	Hours /Week	Hours /Semester	Marks			Duration
ADVANCED TEXTILE MANUFACTUR E	5	80	Internal Assessment	Board Examination	Total	
			25	75	100	

### Topics and allocation of hours:

SI.No.	Topic	Time (hrs.)
1	TEXTURISATION	16
2	MODERN SPINNING	16
3	MODERN WEAVING	16
4	NON – WOVENS	16
5	KNITTING TECHNOLOGY	16
Total		80

## 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 in textile field.
- To know about weft, warp knitting – working and uses.
- To know about weft, warp knitting – working and uses.

## ELECTIVE - I

### 26071 ADVANCED TEXTILE MANUFACTURE

#### DETAILED SYLLABUS

CONTENT : THEORY

Unit	Topic	Time
1	<b>TEXTURISATION</b> Texturisation - Introduction – objects – Type of Textured yarns – Properties of Textured yarns. 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.	16
2	<b>MODERN SPINNING</b> <b>Rotor spinning</b> – 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, extension, unevenness and imperfections, hairiness, flexural rigidity, abrasion resistance, yarn faults and remedial measures – end uses. <b>Friction Spinning:</b> Principle of operation – yarn formation in - Dref 2 and - Dref 3 processes – Advantage and Disadvantage – raw material requirement and fiber characteristics for friction spinning. False twist spinning: working principle – end uses. Murata Jet Spinning – Basic working principle. Basic principle of twist spinning, self twist spinning, wrap spinning and characteristics of these yarns.	16
3	<b>MODERN WEAVING</b> Shuttle less weaving – Types of Shuttle less looms. Projectile weaving – working of Sulzer Projectile weaving machine, study of torsion bar picking and matched cam beat up motions. Rapier weaving – different rapier weft insertion systems – Rigid and flexible rapiers and methods of driving the rapier mechanisms. Jet weaving – working of water jet and air jet weaving machines. Weft accumulators – their need and importance. Study of working of Weft accumulators. Types of selvages formed in Shuttle less weaving machines. Brief idea about circular weaving and multi phase weaving machines.	16

4	<p><b>NON – WOVENS</b></p> <p>Introduction – Definition – classification of different types of non woven – non woven fabric properties – fibers for nonwovens: basic types of staple fibers, properties of basic types of fibers. Production process: web formation – principles of dry laid, wet laid and random laid web formation. Web bonding: chemical bonding – adhesive bonding – saturation and spray techniques. Thermal bonding: calendar bonding, through air thermal bonding. Mechanical bonding: needle punching and hydro entanglement. Defects of nonwoven fabrics. Applications of nonwovens</p>	16
5	<p><b>KNITTING TECHNOLOGY</b></p> <p>Weft knitting:- Introduction, classification – knitting terms and definitions – Course, Wales, stitch density, stitch length, knitted loop – needle loop – sinker loop – face loop – back loop. Properties of knitted fabrics – plain single jersey fabrics – rib fabrics – inter lock fabrics – knit, tuck and miss stitch types. Knitting machine – knitting elements – needles – latch, beard, compound needles. Knitting action of latch needle. Passage of material through single jersey weft knitting machine.</p> <p>Warp knitting: - Introduction, classification – definition of over lap &amp; under lap. Knitting action of bearded needle – Tricot machine. Knitting action of latch needle. Raschel machine. Properties of warp knitted fabrics. Comparison of weft knitting and warp knitting.</p>	16

**TEXT BOOKS:**

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

**V Semester**

**ELECTIVE - I      26071 ADVANCED TEXTILE MANUFACTURE**

**Model Question Paper- I**

Time–3 Hrs.

Max. Marks – 75

**PART A.**

Marks 15 x 1 = 15

**Note:** Answer any 15 questions

1. What is texturisation?
2. Name the different types of textured yarns.
3. State any 2 advantages of textured yarns.
4. What do you mean by 'false twist'?
5. What is the function of rotor in OE spinning?
6. List out a few end uses of OE yarns.
7. State the principle of working of friction spinning.
8. What is wrap spinning?
9. Name the different types of selvages formed on shuttle less looms.
10. What are the different rapier weft insertion systems available?
11. What is the size of projectile?
12. What do you mean by 'profile reed'?
13. What is a random laid web?
14. What are the basic raw materials used in belts?
15. Name a few defects in non wovens fabrics.
16. List the various web bonding techniques used in the formation of non wovens?
17. Define course in knitting
18. Name the common weft knit stitches.
19. List the different types of knitting needles available.
20. Name the popular warp knitting machines you know.

**PART B.**

Marks 5 × 12 = 60

Note : **Answer all Questions**

**21. A** Explain with a neat sketch the false twist texturing method

**OR**

**B** Explain with neat sketch the following

- i) Stuffer box texturing      ii) Knit-de-knit texturing

**22. A** With a neat sketch explain the working of a rotor spinning machine.

**OR**

**B** With a neat sketch explain the working of DREF-3 friction spinning machine

**23. A** Explain with a neat sketch the torsion bar picking mechanism.

**OR**

**B** Explain with neat sketches the different rapier driving mechanisms available.

**24. A** Explain in detail the classification of different types of non woven, stating their applications.

**OR**

**B** Write short notes on      i) Adhesive bonding      ii) Needle punching

**25. A** Explain with a neat sketch the passage of material in a single jersey weft knitting machine.

**OR**

**B** Explain with neat sketches the knitting action of a bearded needle.

**V Semester**

**ELECTIVE - I      26071 ADVANCED TEXTILE MANUFACTURE**

**Model Question Paper - 2**

Time—3 Hrs.

Max. Marks – 75

**PART A.**

Marks 15 x 1 = 15

**Note:** Answer any 15 questions

1. What are the classes of textured yarn?
2. What do you mean by false twisting?
3. State any 2 special properties of textured yarns.
4. How will you texturise a viscose filament yarn?
5. How twist is inserted in the yarn in Rotor spinning?
6. What is the rotor speed in modern OE spinning?
7. State the principle of operation of friction spinning.
8. Mention the special characteristics of wrap spun yarns?
9. What type of selvage is formed on Sulzer projectile looms?
10. What is the main advantage of flexible rapier over rigid rapier?.
11. What are the types of jet looms?
12. State the function of relay nozzles in jet weaving.
13. Define non woven
14. What is the use of Rando feeder Rando webber?
15. What are the different methods of application of adhesives in adhesive bonding?
16. State a few applications of non woven fabrics.
17. Name the important knitting elements in weft knitting.
18. Draw the loop diagram for a weft knitted Rib structure.
19. Define warp knitting
20. Define over lap in warp knitting.



**PART B.**  
Marks 5 × 12 = 60

Note : **Answer all Questions**

**21. A** Explain with a neat sketch the Edge crimping method

**OR**

**b)** With a neat sketch explain the Air jet texturing method

**22. A** With a neat sketch explain the working of DREF – 2 friction spinning machine

**OR**

**B** Give a detailed comparison of yarn qualities of Rotor, DREF and AIRJET yarns

**23. A** With a neat sketch explain the matched cam beat up motion in Sulzer projectile looms

**OR**

**B** Explain with sketches the sequence of weft insertion in an air jet weaving machine.

**24. A** Explain      i) Wet laid web formation and      ii) Dry laid web formation

**OR**

**B** Explain with sketches the working of Rando feeder Rando webber.

**25. A** Draw the loop diagrams of the basic weft knit stitches and explain how they are formed.

**OR**

**B** Explain with neat sketch, the working of Rachel warp knitting machine.



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**TECHNICAL TEXTILES**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY  
Course Code : 1060  
Subject Code : 26072  
Semester : V Semester  
Subject Title : ELECTIVE - II TECHNICAL TEXTILE

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			
	Hours /Week	Hours /Semester	Marks			Duration
TECHNICAL TEXTILE	5	80	Internal Assessment	Board Examination	Total	
			25	75	100	

### Topics and allocation of hours:

Sl.No.	Topic	Time (hrs.)
1	INTRODUCTION	16
2	MEDICAL TEXTILES	16
3	GEO TEXTILES & FILTRATION TEXTILES	16
4	AGRO TECH & SPORTS TEXTILES	16
5	TRANSPORTATION TEXTILES	16
Total		80

## **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 in textile field.
- To know about weft, warp knitting – working and uses.

## V Semester

### ELECTIVE I 26072 TECHNICAL TEXTILE

#### DETAILED SYLLABUS

Content : Theory

Unit	Name of the Topic	Hours
1	<p><b>INTRODUCTION:</b></p> <p>Definition and scope of technical textiles - classification of technical textiles - Development of technical textiles - future of the technical textile industry.</p> <p>Technical fibres – Introduction - high strength and high modulus organic fibres - high chemical and combustion resistant organic fibres - high performance inorganic fibres. (Fibres such as Aramid, Polypropylene, Polyethylene fibres, Carbon, Nomex, Kevlar and glass fibres.)</p>	16
2	<p><b>MEDICAL TEXTILES:</b></p> <p>Introduction - material used in Bio textiles –. Characteristics of materials for medical use - classification of medical textiles - Fibres used - Non-implantable materials - Extra-corporeal devices - implantable materials - healthcare and hygiene products</p>	16
3	<p><b>GEO TEXTILES &amp; FILTRATION TEXTILES</b></p> <p>Geo Textile: Definition – types of geo textiles – fibres and fabric used in geo textiles - essential properties of geo textile - Geo textile functions - separation function - reinforcement and stabilization function - filtration function - drainage function - waterproofing function - protection function - combined function.</p> <p>Filtration textiles: introduction – textiles used as filtration and their features – Fibres used in filtration textiles - yarn type and fabric constructions – fabric constructions and properties.</p>	16
4	<p><b>AGRO TECH &amp; SPORTS TEXTILES</b></p> <p><b>Agro Tech:</b> Introduction – Need of Agro textiles -properties and application – brief study of textiles for seed bag protection, crop covers, insect nets, bird protection nets fishing nets, shade fabrics, Silage protection, ventilation screens – fibers used and fabric particular for these applications.</p> <p><b>Sports textiles:</b> Introduction – sports uniforms, base ball, tennis, football, golf and hockey equipment, skates and bikas - Textiles in sports surfaces.</p>	16

	<b>TRANSPORTATION TEXTILES</b>	16
5	Transportation textiles - Introduction – Fibre requirement – textiles in passenger car – textiles in road vehicles - Rail applications - textile in air craft - marine applications. Future prospects for transportation textiles. Tyre cord – Introduction - quality requirements of a tyre cord -, fibres and yarns used. Hoses: definition - importance of reinforcement and its construction - basic types of reinforcements – fibre requirements for industrial hose - different types of industrial hoses. Belt: Introduction - fibres and yarns used - construction particulars.	

#### 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

**V Semester**  
**ELECTIVE I 26072 TECHNICAL TEXTILES**

**Model Question Paper-1**

Time–3 Hrs.

Max. Marks – 75

**PART-A**

NOTE: Answer any 15 questions      15 X 1=15.

1. What do you mean by 'Technical Textiles'?
2. Name a few high performance organic fibres.
3. Name a few high performance inorganic fibres.
4. State any 2 special properties of Kevlar fibres.
5. How are medical textiles classified?
6. Name any 2 essential characteristics required for fibres used in medical textiles.
7. Give 2 examples for implantable materials.
8. Give 2 examples for extra corporeal devices.
9. What are the various functions of geo textiles?
10. Mention the types of geo textiles.
11. What do you mean by filtration textiles?
12. Name a few fibres used for filtration in chemical industries.
13. What is the need for agro textiles?
14. State any 2 applications of agro textiles.
15. What are shade fabrics?
16. Name the fibres used in fishing nets.
17. Name a few technical textile products used in a car.
18. Name a few technical textile products used in an aircraft.
19. .Name a few fibres used in the manufacture of tyre cords.
20. Name a few types of industrial hoses.

**PART- B**

MARKS 5 X 12 = 60

**NOTE :- Answer all the questions. All questions carry equal marks.**

21. **A**
  - i) Give a classification of technical textiles
  - ii) Explain briefly the scope of technical textiles in India.

**OR**

- B i) What are high strength and high modulus fibres? Give 3 examples  
ii) Explain the properties and uses of the above mentioned fibres.
- 22. A)** i) List the various medical applications of textile materials.  
ii) Give the special characteristics of the products used as implantable materials.

**OR**

- B i) Explain the properties of textile fibres used in extra corporeal devices.  
ii) Write short notes on textiles used as hygiene and health care products.
- 23. A** i) State the essential properties of geo textile materials.  
ii) Explain briefly the application of geo textiles for protection of soil.

**OR**

- B i) Explain the fabric constructions suitable for various geo textile applications.  
ii) Explain the specific properties of yarns and fabrics used as filter materials.
- 24. A** i) Explain the need for agro textiles.  
ii) List the essential properties of fabrics used as sports wear.

**OR**

- B i) Explain briefly the application of agro textiles as seed bags and crop covers.  
ii) Write about the use of textile materials in tennis and football equipments.
- 25. A** i) Explain the use of textile materials in vehicles.  
ii) Explain briefly the properties of fibres and yarns used in belts.

**OR**

- B i) What are the quality requirements of tyre cords.  
ii) Explain the methods of reinforcement of industrial hoses.



**V Semester**  
**ELECTIVE I 26072 TECHNICAL TEXTILES**

**Model Question Paper-2**

Time–3 Hrs.

Max. Marks – 75

**PART-A**

NOTE: Answer any 15 questions.      15 X 1=15

1. Define 'Technical Textiles'?
2. What do you mean by high performance fibres?
3. Name a fibre which has very good combustion resistance.
4. Name a fibre which has very good chemical resistance.
5. Give the uses of textiles in medical applications.
6. Name a few common hygiene products.
7. Name the fibres which are suitable for making surgical sutures.
8. What are surgical disposables?
9. Name the fibres used in geo textiles.
10. What type of geo textile is suitable for water proofing function?
11. What type of geo textile is suitable for drainage function?
12. What type of fabric construction is suitable for filtration textiles?
13. Name a few applications of technical textiles in agriculture.
14. What are insect screens?
15. Name a few applications of technical textiles in sports.
16. Name a few fibres suitable for making artificial turfs.
17. Name a few technical textile products used in marine applications.
18. What is meant by reinforcement of hoses?
19. What are tyre cords?
20. What is the most important property of fibres used in tyre cords?

**PART-B**

5 X 12 = 60

**NOTE :- Answer all the questions. All questions carry equal marks.**

21. **A**
  - i) Define and classify technical textiles
  - ii) Explain briefly the future of technical textile industry in India.

**OR**

- B** i) What are high performance fibres? Give 3 examples  
ii) Explain the properties and uses Kevlar fibres.
- 22. A** i) List the various bio-medical applications of textile materials.  
ii) Give the special characteristics of the products used as surgical disposables.

**OR**

- B** i) Give a classification of medical textiles.  
ii) Explain the properties of textile fibres used in artificial ligaments.
- 23. A** i) Define geo textiles. What are various types of geo textile materials?  
ii) Explain briefly the application of geo textiles for reinforcement functions.

**OR**

- B** i) Explain the advantages of using geo textiles in road laying.  
ii) Explain the application of textile materials in filtration.
- 24. A** i) Explain the importance of agro textiles.  
ii) Write about the use of textile materials in the construction of sports surfaces.

**OR**

- B** i) Explain briefly the application of agro textiles as insect nets and bird nets  
ii) List the essential properties of fabrics used as sports uniforms.
- 25. A** i) Explain the use of textile materials in trains and air crafts.  
ii) Explain briefly the properties of fibres used in hoses.

**(Or)**

- B** i) Explain the fibres and yarns used in tyre cords,  
ii) Explain briefly about the construction of belts.



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**TEXTILE TESTING PRACTICAL**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY  
Course Code : 1060  
Subject Code : 26055  
Semester : V Semester  
Subject Title : TEXTILE TESTING – PRACTICAL

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			
	Hours /Week	Hours /Semester	Marks			Duration
Textile TESTING Practical	6	96	Internal Assessment	Board Examination	Total	
			25	75	100	

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.

**Guidelines:**

- All the fourteen 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.
- Every student should be provided with one instrument for a batch Of 30 students

## List of experiment

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

### LLOCATION OF MARKS

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

## 26055 TEXTILE TESTING PRACTICAL

### Model question paper

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

**List of equipment** : - Baer sorter – 2, Trash analyzer, ATIRA fibre fineness, Wrap block, physical balance – 2, Knowle`s balance, 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 Fabric thickness tester, Fabric bursting strength tester, and Crease recovery tester.

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.**



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**TEXTILE WET PROCESSTING PRACTICAL**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**



## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY  
Course Code : 1060  
Subject Code : 26056  
Semester : V Semester  
Subject Title : TEXTILE WET PROCESSING - PRACTICALS

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			
	Hours /Week	Hours /Semester	Marks			Duration
TEXTILE WET PROCESSING Practical	6	96	Internal Assessment	Board Examination	Total	
			25	75	100	

#### 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 16 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.

## **ALLOCATION OF MARKS**

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

**26056 TEXTILE WET PROCESSING PRACTICAL**

**List of experiments**

**Preparation to wet processing**

- 1 Desizing of fabric using enzyme.
- 2 Scouring of yarn / fabric.
- 3 Bleaching of yarn / fabric using Hydrogen Peroxide.

**Dyeing**

- 4 Dyeing of cotton material with vat dyes.
2. Dyeing of cotton material with sulphur dyes.
3. Dyeing of cotton material with cold brand reactive dyes.
4. Dyeing of polyester material with disperse dye.
5. Dyeing of wool with acid dye.
6. Dyeing of silk with basic dyes.

**Printing**

7. Printing of cotton fabric with reactive dye in direct style.
8. Direct style of printing on cotton using Pigment.

**Finishing**

9. Finishing of cotton fabric with starch.
10. Finishing of cotton fabric with PVA.
11. Finishing of cotton fabric with softener.

**Testing**

12. Testing of colour fastness of dyed textile materials to washing.
13. Testing of colour fastness of dyed textile materials to rubbing.

## V Semester

# 26056 TEXTILE WET PROCESSING PRACTICAL

### Model question paper

1. Desize the fabric sample using enzyme.
2. Scoure the yarn / fabric given..
3. Bleach the yarn / fabric using Hydrogen Peroxide.
4. Dye the cotton material with vat dyes.
5. Dye the cotton material with sulphur dyes.
6. Dye the cotton material with cold brand reactive dyes.
7. Dye the polyester material with disperse dye.
8. Dye the wool sample with acid dye.
9. Dye the silk sample with basic dyes.
10. Print the cotton fabric with reactive dye in direct style.
11. Print the cotton fabric using Pigment by direct style.
12. Finish the cotton fabric with starch.
13. Finish the cotton fabric with PVA.
14. Finish the cotton fabric with softener.
15. Test the colour fastness of dyed textile materials to washing.
16. Test colour fastness of dyed textile materials to 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	- 10 Nos.
02.	Crockmeter for rubbing fastness testing	- 05 Nos.
03.	Launderometer for washing fastness testing	- 05 Nos.
04.	Printing table	- 02 Nos.
05.	Printing Screens	- 10 Nos.
06.	Padding Mangle	- 02 Nos.
	Manual	- Lab Manual



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**COMMUNICATION AND LIFE SKILLS  
PRACTICAL**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implemented from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN ENGINEERING/TECHNOLOGY

Subject Code : **20002**

Semester : **V SEMESTER**

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

### TEACHING AND SCHEME OF EXAMINATION:

No. of Weeks per Semester: 16 Weeks

Subject Title	Instructions		Examination			
	Hours/ Week	Hours/ Semester	Marks			Duration
			Internal assessment	Board Examination	Total	
COMMUNICATION AND LIFE SKILLS PRACTICAL	4 Hours	64 Hours	25	75	100	3 Hours

### Topics and Allocation of Hours:

Sl. No.	Section	No. of Hours
1	Part-A: Monodic Communication	16
2	Part-B: Dyadic Communication	16
3	Part-C: Professional Communication	16
4	Part-D: Life Skills	16
Total		64

## **RATIONALE**

Nowadays, effective and error free communication is a basic need. Communication through English is the order of the day for entry and survival in any corporate. Training in Monodic communication (one man communication) Dyadic communication (a pair communication) and Professional communication (may be Monodic, Dyadic or Group communication) is attempted through these practical modules. One can improve one's communication skills by enriching one's vocabulary ,particularly active vocabulary and standard everyday expressions and using them in various contexts. Practice alone, both on the campus and outside the campus, can help a learner to grow proficient in the art of Communication.

Language is the most commonly used and effective medium of self-expression in all spheres of human life - personal, social and professional. A student must have a fair knowledge of English language use and various communicative functions. He/she must be able to pursue the present course of study and handle the future jobs in industry. The objective of the course is to assist the diploma holders to acquire proficiency in monodic, dyadic and professional communication skills and selective but most important life skills. At the end of the course, the student will be able to communicate his ideas fear free and error free, in social and professional spheres of life and imbibe life skills.

## **SPECIFIC INSTRUCTIONAL OBJECTIVES**

Communication is crucial as it influences every aspect of one's personal development. Having a sound grounding in reading and writing techniques allows a student to progress on to higher level literacy skills. Many students struggle because their basic decoding is so inaccurate that advanced comprehension is difficult for them. Because of their poor exposure and poor use of English language in various spheres of life they suffer proper communication. They also tend to be 'afraid' of words and in turn they are not able to develop their personal vocabulary. In otherwords, without solid literacy skills, the student's prospects and life chances are limited. It is a fact that Communication skills and Life Skills shapes one's personality.

## **MONODIC COMMUNICATION**

The student is able to:

1. Practice using departmental words and terminology in sentences.
2. Prepare and perform oral presentations.
3. Introduce oneself and others.

4. Deliver welcome address and vote of thanks.
5. Compare a program.
6. Describe the visuals.
7. Take notes, answer very short questions.
8. Comprehend an auditory/oral passage.

### **DYADIC COMMUNICATION**

The student is able to:

1. Adopt various communicative functions.
2. Prepare and perform a dialogue.
3. Adopt the basics of telephone etiquette.

### **PROFESSIONAL COMMUNICAITON**

The student is able to:

1. Prepare a resume.
2. Take part in a group discussion.
3. Communicate through body language.
4. Adopt the interview skills with professional presence.
5. Perform mock interview.

### **LIFE SKILLS**

The student is able to:

1. Prepare for and deal with change.
2. Adopt motivation, goal-setting and self-esteem.
3. Adopt Teamwork skills.
4. Adopt Time management.
5. Adopt Emotional intelligence skills.
6. Assert Positively.
7. Adopt Interview etiquette.
8. Plan career.
9. Understand Strength, weakness (long term, short term).



## LEARNING STRUCTURE

To enable the students to practise monodic communication, dyadic communication professional communication and imbibe life skills through various modes of practical learning and assignments.

<b>PROCEDURE</b>	<b>MONODIC COMMUNICATION</b>	<b>DYADIC COMMUNICATION</b>	<b>PROFESSIONAL COMMUNICATION</b>	<b>LIFE SKILLS</b>
<b>PRINCIPLES</b>	Identifying various platforms	Exposure to dialogue situations, exposure to telephone etiquette.	Exposure to resume writing, group discussion, interviews.	Exposure to selective life skills/problem solving skills.
<b>CONCEPTS</b>	Sharing opinions, feeling, with or without audience.	Understanding the basic communicative functions. Conversing with a neighbour	Writing resume, performing group discussion, facing interviews.	Imbibe and practise the selective life skills.
<b>FACTS</b>	Oral presentation, art of introduction, enhancing the list of active vocabulary, listening skills, note taking skills, describing skills.	Audio tapes, compact disk, mikes, various contexts.	FAQ, Resume models, Audio tapes, compact disk, mikes.	Stories, anecdotes, incidences, case studies and assignments.

# COMMUNICATION AND LIFE SKILLS PRACTICAL

## SYLLABUS

### **PART A: MONODIC COMMUNICATION**

(16 hours/ periods)

- a) **Vocabulary enrichment:** recording important words and terminology alphabetically connected to the concerned department – playing antakshari.
- b) **Introducing oneself:** using greeting phrases – opening and closing with courteous notes – supplying personal information.
- c) **Introducing others:** using greeting phrases – opening and closing with courteous notes – with information.
- d) **Welcome address, vote of thanks and compering a program:** keeping notes – and personal information of the dignitaries – concerned.
- e) **Making an Oral Presentation:** Preparing the presentation - Talking about people, animals and places – Keywords technique and the rehearsal – Presentation outline – Performing the presentation – answering the questions.
- f) **Oral description:** a picture from an English magazine – a visual ad – a natural scene.
- g) **Auditory/Oral comprehension** – small passage – small dialogue -very short story – note - taking skill.
- h) **News Caption:** giving caption for a news item from an English daily.

### **PART B: DYADIC COMMUNICATION: COMMUNICATIVE FUNCTIONS** (16 hours/ periods)

- a) **Dialogue:** preparing and performing - Meeting people, exchanging greetings and taking leave – Giving instructions and seeking clarifications – Thanking someone and responding to thanks - minimum seven exchanges including the courteous openings and closings – ten common contexts.
- b) **Telephonic dialogue:** telephonic etiquette - Answering the telephone and asking for someone – Dealing with a wrong number – Taking and leaving messages – Making enquiries on the phone-ordering for supply-bookings and arrangements-handling the complaints – calling for appointment.

### **PART C: PROFESSIONAL COMMUNICATION**

(16 hours/ periods)

- a) Group Discussion - Taking part in a Group Discussion – focus on team spirit.
- b) Interview - Frequently asked questions in an interview – Mock interview - Body language.
- c) Resume Writing – components.

### **PART D: LIFE SKILLS**

(16 hours/ periods)

- a) Preparing for and dealing with change.
- b) Motivation, goal-setting and self-esteem.
- c) Teamwork skills.
- d) Time management
- e) Emotional intelligence skills
- f) Career planning.
- g) Assertive Skills.
- h) Interview skills.

## References :-

- 1) Malcolm Goodale, Professional Presentations with VCD, Cambridge University Press
- 2) B.Jean Naterop and Rod Revell, Telephoning in English with 2 Audio CDs Cambridge University Press
- 3) Priyadarshi Patnaik, Group Discussion and Interview Skills with VCD, Cambridge University Press
- 4) Kamalesh Sadanand and Susheela Punitha, Spoken English: A Foundation Course for Speakers of Tamil, Orient BlackSwan.
- 5) S. P. Dhanavel, English and Soft Skills, Orient BlackSwan
- 6) Robert Sherfield and et al, Developing Soft Skills, Pearson Education.
- 7) Poly Skills: A course in communication skills and Life skills, Cambridge University Press.
- 8) English and Communication Skills for Students of science and Engineering by S.P.Dhanavel , Orient BlackSwan.
- 9) Speak Well, edited by Kandula Nirupa Rani, Jayashree and Indira, OrientBlackSwan.
- 10) Fifty ways to improve your telephoning and teleconferencing Skills by Ken Taylor -

# COMMUNICATION AND LIFE SKILLS PRACTICAL

## Model Question Paper - 1

Time: 3 hrs

Max Marks: 75

### PART –A (35 Marks)

#### **Monodic Communication:**

1. Introduce one self (5)
2. Use the mentioned words orally in sentence (2x2 ½ =5)
3. Prepare and present a welcome address for your college annual day programme. (5)
4. Listen to the passage read out from the English daily of the week of the examination.  
Please note: No prerecorded passage (10)
5. Write a news caption for the passage given from the English daily. (5)
6. a) Describe orally the visual or the picture found in the English daily of the week of the examination. (5)

(Or)

- b) Make an oral presentation about an animal.

### PART – B (15 Marks)

#### **Dyadic Communication:**

1. Play antakshari of five pairs of departmental words with your partner. (5)
2. Prepare and perform a dialogue with your partner on the given situation (10)  
(minimum seven exchanges)

Or

- Prepare and perform a telephonic dialogue on a flight booking.  
(minimum seven exchanges)

### PART-C (25 Marks)

#### **Professional Communication:**

1. Form a group of six members and perform a discussion on the given theme. (10)
2. Imagine you are V.Gokulraj, a diploma holder. Prepare a resume for the post of supervisor in Oberoi computers Ltd.Chennai. (10)

**Professional appearance:** Interview etiquette-dress code- Body language (5)

# COMMUNICATION AND LIFE SKILLS PRACTICAL

## Model Question Paper - 2

Time: 3 hrs

Max Marks: 75

### PART –A (35 Marks)

#### Monodic Communication:

1. Introduce your friend S.Mohan an a excutive engineer to a group of audience. (5)
2. Use the mentioned words in sentence orally. (2x2 ½ =5)
3. Prepare and present a Vote of thanks in your college sports day programme. (5)
4. Listen to the passage read out from the English daily of the week of the examination.  
Please note: No prerecorded passage (10)
5. Write a news caption for the passage given from the English daily. (5)
6. a) Describe the visual or the picture found in the English daily of the week of the conduct of the examination. (5)

(Or)

- b) Make an oral presentation about your polytechnic college.

### PART – B (15 Marks)

#### Dyadic Communication:

1. Play antakshari of five pairs of your departmental words with your partner. (5)
2. Prepare and perform a dialogue with your partner on the given situation (10)  
(minimum seven exchanges)

(Or)

- Prepare and perform a telephonic dialogue on ordering the supply of a computer  
(minimum seven exchanges)

### PART-C (25 Marks)

#### Professional Communication:

1. Form a group of six members and perform a discussion on the given theme. (10)
  2. Imagine you are M.Kishore a diploma holder. Prepare a resume for the post of operating engineer in REC Electricals Ltd.Madurai. (10)
- Professional appearance:** Interview etiquette-dress code- Body language (5)

## NOTES OF GUIDANCE

### Role of the media:

To equip a learner with vocabulary, particularly active vocabulary and standard everyday expressions, using English dailies and watching selective English T.V. channels both in the classroom and outside the classroom is focused. Such a provision is recommended for the students to establish familiarity with the English dailies and selective English T.V. channels.

Minimum two copies of two English dailies in the laboratory room (students can bring their own copies also). Minimum two systems with net connection for information collection in the laboratory itself.

### Synopsis of the news item:

During every lab work day, students must choose a news item from the English daily or weekly or monthly, and write a synopsis of the chosen news item, in not more than five lines. The news item should be pasted on the left page and synopsis on the right page (the chosen news item should not be politically, socially or communally controversial). Students should exercise care in choosing the news items. Teachers have to advise them on this aspect. This can be done outside the class hours also but every record exercise should begin with the synopsis of news item of the date of the lab session.

For example, first lab exercise namely departmental vocabulary and antakshari is performed on 15/12/2011. The student should choose a news item from any English daily of 15/10/2011 and record the synopsis on the right page (in not more than 5 lines) under the caption **Synopsis of the news item of the day/date 15/10/2011**. There is no harm in repeating or copying the lines from the passage. The essence of the passage should be there. The cutout news item for presenting the synopsis should be pasted on the left page of the record notebook.

This is to be done with interest for developing one's personality. This work **does not carry any marks** but without which the record exercise should not be valued. This is the precondition for valuing the record exercise. Each record exercise follows the synopsis of the chosen news item.

At the bottom of the synopsis, the student should record the **dictionary meaning** of at least **one strange word** found in the chosen news item. At the end of every month, a minimum of 10 Headlines of 10 different days i.e. one Headline a day from any English daily should be pasted on the right or left page of the Record Note Book. (This work does not carry marks but this is the precondition for marking the record exercises)

External examiner, before signing the record notebook, should verify whether the Newspaper works were recorded/pasted in the record notebook.

Verbal communication in any language begins with sounds in isolation, union and word formation. Learning everyday words and expressions is the primary factor. Grammar comes next. One can enrich one's every day vocabulary by reading English magazines and listening to or watching an English channel on television. So an English laboratory should be equipped with a minimum of two copies of two English dailies and English weeklies or monthlies.

Watching English channels helps the students improve their vocabulary and expressions. If there is a provision, students may be permitted to watch selective, mind corruption free English channels (sports, education, news, animal channels and so on) for at least 15 min. during the English lab sessions. This will serve as motivation for the students and help them shed their inhibition.

### **What is antakshari? (Polar word game)**

This game can be played on the stage by two or three students using the departmental words. Suppose Mr. A belongs to Dept.of Electrical and Electronics and he says his departmental word '**ampere**'. Mr. B has to supply a word beginning with the ending letter of Mr. A's word. The word **ampere** ends with the letter '**e**' so Mr. B says '**electrical**'. Mr. A has to continue with the letter '**l**'. Like that five pairs of words are to be spoken. (**Letter ending only, not sound ending.**) Suppose departmental words are not available in some English letters like

'x' 'y' 'z' the students may be permitted to use common words.

### **ANTAKASHARI ( Five Exchanges )**

(Dept. of Mechanical Engineering.)

#### **EXAMPLE:**

Mr. A	Mr. B
1. Governor	<b>Reservoir</b>
2. <b>Rack</b>	<b>Kelvin</b>
3. Nut	<b>Tool</b>
4. <b>Lathe</b>	<b>Emission</b>
5. Naphtha	<b>Anvil</b>

## **Introducing oneself:**

One is not expected to introduce one's family. One or two sentences on his family will do. Care must be taken to include general proficiency, titles and merits, awards possessing or secured in academic activities like paper presentation, participation in inter polytechnic or intra polytechnic competitions, sports activity, forums like NCC,NSS, hobby, ambition, strengths and weaknesses.

**Introducing others** – merits – credentials—one or two points on his family.

**Vote of thanks / Welcome address.**No doubt it should be all-covering but Focus should be on the important persons/invitees/chief guest and the message of the speaker.

**Description** (pictures from English weekly/daily) Pictures may be displayed through projector or Magazine cuttings may be used. Just five lines on the picture will do.

**Auditory/oral comprehension:** A Passage from any English daily of the week of the examination is to be read out for two to three minutes in the end examination. Display of recorded passages can be used as an addition in the class room. The use of pre-recorded passage discouraged in the end examination.

**Oral presentation:** Students must be encouraged to use English magazines and internet for collecting information on the topic, noting keywords and use them in their presentation in his own language. One must be able to talk extempore for 2 min on any topic, given a time of two minutes for organizing his/her thoughts. The topics can be kept simple and general (current events of interest like sporting event for headline of the day). It must be totally an oral activity without the aid of any other media.

**News Caption:** A news item ,without heading,of not more than ten lines from an English daily of the week of the conduct of Examination is to be given. The caption may be a passive construction or a catchy phrase on the given news item.

**Face to face dialogue:** Selective nine situations / topics are to be performed in the class room. (Minimum seven exchanges with courteous openings and closings).

**Telephonic dialogue:** Selective seven situations to be given. (Minimum seven exchanges).

**Resume writing:** cover letter—the components of a resume like sender's address, recipient's address, career objective to be explained.

**Group Discussion:** Topics of common interest, avoiding controversial ones, are to be given for discussion. A group may consist of six members.

Students should be exposed to 44 phonemes (sounds) in English language and their symbols.

There shall be no question on this end examination.



## **COMMUNICATION SKILLS EXERCISES:-**

1. Departmental Vocabulary alphabetically (using it in sentence, antakshari).Using the words orally in sentences
2. Introducing oneself and others
3. Vote of thanks / Welcome address
4. Description (pictures from English weekly/daily)
5. Auditory/oral comprehension
6. Oral presentation
7. Face to face dialogue
  
8. Telephonic dialogue
9. Resume writing
10. Group Discussion

### **Communication Skills:**

Ten Marks for each exercise leading to a maximum of hundred marks in total.

The total marks to be reduced to an average of ten marks.

Texts of the performed activities to be recorded in the Record Note book. Synopsis of the news item of the day/date is mandatory at the beginning of every record exercise.

### **Life Skills:**

- i) Preparing for and dealing with change.
- j) Motivation, goal-setting and self-esteem.
- k) Teamwork skills.
- l) Time management
- m) Emotional intelligence skills
- n) Career planning.
- o) Assertive Skills.
- p) Interview skills.

Life skills are to be intensely inculcated through lectures, quotes, anecdotes and case studies. An excellent awareness of the eight essential life skills is to be created through continuous internal assessment. Five assignments in these topics are to be recorded in the record note book.

- A minimum of five assignments on five different topics.
- Each assignment to be assessed for twenty marks.
- The total marks to be reduced to an average of ten marks.
- All the topics to be covered in the lab.

## **TIME MANAGEMENT IN THE END EXAM.**

### **For written part 30 min**

- Written part of the examination should be the first / beginning of the examination, monadic oral exam to start during the written exam.

Written Part exercises:

- auditory / oral comprehension.
- Resume writing.
- Giving news caption for the passage.
- During the written examination time of 30 minutes, monadic communication examination may also take place simultaneously.

### **MONODIC COMMUNICATION ( ONE MAN COMMUNICATION)**

Oral part – 75 min.

Both internal and external examiners (simultaneously) are to examine the students.

Five minutes for each student. 15 students for external & 15 students for internal and within 75 minutes both internal and external examiners complete the monadic communication exam.

### **DYADIC COMMUNICATION ( ONE PAIR COMMUNICATION)**

- 5 min for each pair.
- 15 pairs in total. 8 pairs for external and 7 pairs for internal examiner. (8x5=40 min) within **40 min** both internal and external examiners complete the dyadic communication exam.
- The students examined by the external for monadic exam are to be examined by the internal for dyadic and vice versa.

### **PROFESSIONAL COMMUNICATION**

- 30 min for group discussion.
- 6 members in each group.
- 5 min for discussion for each group.
- Both internal and external examiners to supervise / examine simultaneously one group each.
- Within fifteen minutes all the six groups to be examined.

## LABORATORY REQUIREMENT

1. An echo-free room for housing a minimum of sixty students.
2. Necessary furniture and comfortable chairs
3. Public Address System.
4. A minimum of two Computers with internet access, with Audio for Listening Skill and related software packages.
5. A minimum of Two different English dailies.
6. A minimum of one standard Tamil daily.
7. Headphone units – 30 Nos. with one control unit with a facility to play and record in Computer.
8. A minimum of Three Mikes with and without cords.
9. Colour Television (minimum size – 29”).
10. DVD/VCD Player with Home Theatre speakers.
11. Clip Chart, white board ,smart board.
12. Projector.
13. video camera.
14. Printer,Xerox,scanner machines **desirable**.
15. English Weeklies/monthlies/journals like ELTOI **desirable**.
16. Frozen thoughts –monthly journal for Lifeskills by Mr.Rangarajan / [www.frozenthoughts.com](http://www.frozenthoughts.com)

### Mark Pattern

**End Examination – 75 Marks**

Monodic Communication – 35 Marks

Dyadic Communication – 15 Marks

Profession Communication – 20 Marks

Professional Appearance – 5 Marks

**Internal Assessment 25 Marks**

Communication skills Record Notebook 10 Marks

Life skills assignments 10 Marks

Attendance 5 Marks

# COMMUNICATION AND LIFE SKILLS PRACTICAL

## Allocation & Statement of Marks

Duration:3Hrs.

Name of the Candidate

Reg. No.

### A. Monodic communication : 35 Marks

Introduction (5 mks)	Use in sentence (5 mks)	Vote of thanks / welcome address (5 mks)	Auditory/Oral comprehension (10 mks)	Description/ Oral presentation (5 mks)	News caption (5 mks)	Total (35 mks)

### B. Dyadic communication: 15 Marks

Antakshari (5 mks)	Dialogue (10 mks)	Total (15 mks)

### C. Professional communication: 20 Marks

Group Discussion (10 mks)	Resume (10 mks)	Total (20 mks)

### D. Internal Assessment: 25 Marks

Record Notebook Commn.skills (10 mks)	Assignments Life Skills (10 mks)	Attendance (5 mks)	Total (25 mks)

**Professional Appearance:**

**/5 Marks**

**Total :**

**/100 Marks**

**Internal examiner**

**External examiner**

## FACE TO FACE DIALOGUE TOPICS

1. Between Friends (On any acceptable topic).
2. Between a conductor and a passenger.
3. Between a doctor and a patient.
4. Between a Shopkeeper and a Buyer.
5. Between a Teacher and a Student.
6. Between a tourist and a guide.
7. In a Bank.
- 8 At a railway enquiry counter.
9. Lodging a complaint.

**Note:** A resourceful teacher may add a few more topics of common interest.

## TELEPHONIC DIALOGUE TOPICS

1. Placing an order.
2. Making Enquiries.
3. Fixing appointments
4. Making a hotel reservation.
5. Dealing with a wrong number.
6. Travel arrangements.
7. Handling complaints.

## MECHANICAL DEPARTMENTAL VOCABULARY FOR ANTAKASHARI AND USING IN SENTENCES

EXAMPLE:

A:

1. Anvil – made of cast Iron used in foundry shop.
2. Axle – A metal rod that connects two wheels.
3. Alloy – alloy is a mixture of two or more metals.
4. Addendum – distance between top of gear teeth and pitch circle.
5. Annealing – It is a heat treatment process for softening the metals.

B:

1. Bearing – it is which supports the shaft.
2. Bolt – it is a type of fastener. Combined with screw.
3. Brake – it is used to halt an auto mobile vehicle.
4. Beed – steel wiring used in tyres to withstand stress.
5. Baffles – it is used to reduce noise, filter dust particles in auto mobile.

C:

1. Cam – it is a lobe like structure, which actuates the valve.
2. Crown – the slope like structure in the piston.
3. Calipers' – they are measuring instruments.
4. Clutch – it is used to disengage and engage the fly wheel and main shaft.
5. Chamber – it is the distance between vertical line and tyre center line.

D:

1. Damper – it is a type of shock absorber, reduces the vibration.
2. Differential – it controls the speed of rotating wheel in the rear axis.
3. Diaphragm – it is used to separate two layers.
4. Detonation – it is the continuous knocking with serious effect on cylinder head.

E:

1. Evaporator – it absorbs heat to vapourise liquid into air
2. Engine-the place where fuel is burnt and heat energy is converted. mechanical energy
3. Electrolyte-it is a liquid substance which is used to transfer current or any metal particle.
4. Emission-the release of burnt gas from automobile.
5. Elongation-the increase of dimension due to application of load.

F:

1. Filter-which is used to remove dust particles.
2. Friction-the resistance on wear occur due to rubbing of two metals.
3. Fly wheel-the wheel like structure used to balance the uneven weight in engine.
4. Fuel – it is a substance that burns with oxygen in the air.
5. Factor of safety - it is the safety limit after which the material will break down.

G:

1. Governor – it is used to control the flow of fuel according to load.
2. Gear – it is used to transmit power from one place to another.
3. Generator – it is used to generate power.
4. Gasket – it prevents the leakage and to provide sealing effect.
5. Goggle – the protective device used to guard the eyes.

H:

1. Hub – it is the center part of wheel.
2. Hammer – it is used to beat sheet metals.
3. Hydraulics – it deals with fluid for various function.
4. Hatching – it is used to highlight the parts in drawings.
5. Head stock – it is the main function unit of lathe.

I:

1. Ignition – it is the function by which fuel is burnt.
2. Injection – it is the process of spraying fuel into engine block.
3. Impeller – it is which converts kinetic energy into pressure energy.
4. Inventory – it is the place where raw materials are stored.
5. Idling – it is the condition at which the automobile engine at stationary state.

J:

1. Jig – it guides the tool and hold the job.
2. Jaw – it is teeth like structure used to hold work pieces.
3. Jog mode – Jog mode is used to give manual feed for each axis continuously.
4. Junk – it is known as waste material in industry.
5. Journal – It is a type of bearing.

K:

1. Keyway – it is a specific path made in shaft to joint parts.
2. Knocking – the sound produced due to Burning of uncompleted burnt fuel.
3. Kelvin – it is the degree of hotness.

4. Knurling – it is the process of lathe done to work piece to improve the gripness.
5. Knuckle joint – It is a type of joint used to connect two work pieces.

L:

1. Lubrication – process of reducing heat by applying cooling substances.
2. Layering – it is used to draw parts of a machine separately and combine together.
3. Lever – it is a supported arm used to engage gears.
4. Lathe – it is the father of machines used in turning operations.
5. Lead screw - it is the screw through which the carriage travels.

M:

1. Manometer – it is used to measure the pressure of fluids.
2. Milling – process of removing metal from work piece by rotating cutting tool.
3. Manifold – it is a passage made for flow of fuel in automobile.
4. Moulding – it is the process of passing hot liquid metal into mould made through sand.
5. Module – it is a metric standard used to identify or specify pitch.

N:

1. Nozzle – it is used to reduce the pressure and increases the velocity.
2. Nut – it is a type of fastener used to couple with screw.
3. Nomenclature – Dimensional property of specific part on component is notified by nomenclature.
4. Neck – Distance between drills body and shank.
5. Naphtha – kind of inflammable oil.

O:

1. Orthography – it is the three dimensional view of an object.
2. Ovality – Elliptical shape of piston.
3. Over haul – it is the complete checking and servicing of a machine or vehicle.
4. Optimum temperature – suitable temperature condition for certain process on working.
5. Offset – it is by which the axis of certain job is defined.

P:

1. Pinion – a small gear is called pinion.
2. Pulley – A cylindrical object used to connect belt for transmitting power.
3. Pump – it is which transfers fluid from one place to another.
4. Piston – it is which transfer power from combustion chamber to connecting rod.



5. Port – it is the opening in two stroke engine for movement of fuel and exhaust.

Q:

1. Quilt – it is used to give automatic feed in machines.
2. Quality control – it is an inspection processl.

R:

1. Reaming – it is the operation used to finish inner surface of a hole.
2. Reservoir – it is used to store fuel or any liquid.
3. Rack – it is a spur gear with infinite radius.
4. Retainer – it is used to bring back to the original position.
5. Radiator – it is the part used in automobile for cooling water.

S:

1. Shackle – it is a rod connected to leaf spring.
2. Spring – it is a circular rod which compresses on load and retracts when released.
3. Strainer – it is used to remove micro particles.
4. Shock absorber - it is used to reduce vibration and give cushioning effect.
5. Suspension- it is used to absorb shocks and give cushioning effect.

T:

1. Tail stock – it is used in lathe to support the job.
2. Tool – it is a metal removal device.
3. Torque – it is the twisting load given on a work piece.
4. Trimming – it s the process of removing excess metal .
5. Turning – it is a metal cutting process used to reduce diameter.

U:

1. Universal joint-it is used to connect propeller shaft and differential unit.
2. Universal divider head- it is used to index various components.

V:

1. Valve – valve is the part used in automobile for flow of fuel and exhaust to cylinder head.
2. Vent hole – it is the hole made in casting for ventilation purpose.
3. Vulcanizing – it is the process of adding carbon to rubber.
4. Vibration – it is caused due to the movement in an uneven surface.
5. Velocity-rate of change of displacement.

W:

1. Wheel-it is a circular object which rotates and moves the vehicle.
2. Wiper-it is used in wind shield to remove water droplets.
3. Work piece-it is the material in which various processes are done to make a component.
4. Wage-it is the amount paid to a worker for his work.
5. Washer-washer is a component used in fasteners to reduce gap.

Y:

1. Yawing-the turning of wind mill towards direction of air is called yawing.
2. Yoke-it is which holds the other end of spindle in milling machine.
3. Yield stress-It is the stress above which it will attain the breaking stress.
4. Young's modulus-it is the ratio between stress and strain.

**Pl.note:** Suppose departmental words are not available in some English letters like

' x ' ' y ' ' z ' the students may be permitted to use common words. This is only an example. Another student of Mechanical Engineering can have different sets of words under each letter of the English alphabet. Like that there may be variety of sets. The most important point is that One is not supposed to murmur but speak the words intelligibly in an audible manner. Swallowing the words will deprive a student of winning a selection in an interview. In the same way, students of other Departments can have different sets of words of their departments under each letter of the English alphabet.

## TELEPHONE LANGUAGE AND PHRASES IN ENGLISH

### Answering the phone

" Good morning/afternoon/evening, Madras Enterprises, Premila speaking."

" Who's calling, please?"

### Introducing yourself

" This is Raghavan speaking."

" Hello, this is Raghavan from Speak International."

### Asking for someone

" Could I speak to Mr. Raman, please?"

" I'd like to speak to Mr Raman, please."

" Could you put me through to Mr Raman, please?"

" Could I speak to someone who ..."

### Explaining

" I'm afraid Mr. Raman isn't in at the moment".

" I'm sorry, he's in a meeting at the moment."

" I'm afraid he's on another line at the moment."

" Putting someone on hold"

" Just a moment, please."

" Could you hold the line, please?"

" Hold the line, please."

### Problems

" I'm sorry, I don't understand. Could you repeat that, please?"

" I'm sorry, I can't hear you very well. Could you speak up a little, please?"

" I'm afraid you've got the wrong number."

" I've tried to get through several times but it's always engaged."

" Could you spell that, please?"

### Putting someone through

" One moment, please. I'll see if Mr Raman is available."

" I'll put you through."

" I'll connect you."

" I'm connecting you now".

### **Taking a message**

" Can I take a message?"

" Would you like to leave a message?"

" Can I give him/her a message?"

" I'll tell Mr. Raman that you called"

" I'll ask him/her to call you as soon as possible."

" Could you please leave your number? I shall ask him to get back to you."

**Pl.note:** The above ones are samples only. A resourceful teacher may add more.

## **DAY-TO-DAY EXPRESSIONS** ( For dialogues )

### **COMMON PARLANCE**

How are you?

Fine. Thank you.

How are you?

Me too.

How do you do?

How do you do?

It's good to see you again.

Glad to meet you.

Thank you.

Thanks very much.

Welcome.

Hello! How is everything?

Just fine. Thanks. What's new?

Nothing much.

I'm pleased to meet you.

The pleasure is mine.

I've heard Paul speak about you often.

Only good things! I hope.

Look who's here!

Are you surprised to see me?

Sure. I thought you were in Chennai.

I was, but I got back yesterday.

Sorry, May I help you?  
So kind of you.  
That's so nice of you.  
Nice talking to you.  
Nice meeting you.  
It's getting late, and I've to go now.  
Certainly. Come back soon.  
In that case, I'll be seeing you.  
Fine.  
Thank you.  
Welcome  
So long. See you later.  
Take care. Bye.  
Good-bye.

Could you tell me the time, please?  
Certainly. It is 5.35 p.m.  
My watch says 5.40 p.m.  
Then your watch is five minutes fast.

Excuse me. Can you tell me the way to ...?  
May I come in?  
How is the weather today?  
It is pleasant. / sunny / rainy / warm /windy.

I am sorry, Can you repeat what you have said.  
I am sorry, I can't hear you properly.  
It is not audible. Can you please repeat it?  
Beg your pardon; I don't get your words clearly.  
How do you feel now?  
Are you ok?  
I am fine. And how about you?  
I am fine. Thank you.

### **GROUP DISCUSSION**

Let me begin with introducing this concept,  
Well, this is to convey that  
At the outset, I am here to convey  
At this juncture, I would like to  
May I intervene?  
May I add?  
Kindly permit me to say  
If you could allow me to say  
Let me add a few words  
Let me first answer your question  
Can you please allow me to convey  
Excuse me; I would like to add further

On behalf of my colleagues,  
On their behalf  
Firstly/ secondly/ thirdly.  
Finally/ conclusively/ at the end / Summing up  
Eventually/ in the event of  
In spite of / otherwise/ although/ though

**Please Note:**

- The above ones are samples only.
- A resourceful teacher may add more.
- A potential student may exhibit variety.

**VI SEMESTER**



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**TEXTILE MANAGEMENT**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**



## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY  
Course Code : 1060  
Subject Code : 26061  
Semester : VI Semester  
Subject Title : TEXTILE MANAGEMENT

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			Duration
	Hours /Week	Hours /Semester	Marks			
TEXTILE MANAGEMENT	5	80	Internal Assessment	Board Examination	Total	3 Hrs
			25	75	100	

### Topics and allocation of hours:

Sl.No.	Topic	Time (hrs.)
1	FUNDAMENTALS AND PERSONNEL MANAGEMENT	16
2	PRODUCTION MANAGEMENT	16
3	SUPERVISORY AND SAFETY MANAGEMENT	16
4	INVENTORY CONTROL AND FINANCIAL MANAGEMENT	16
5	EXPORT MARKETING MANAGEMENT	16
Total		80

## 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.

## 26061 TEXTILE MANAGEMENT

### DETAILED SYLLABUS

Content : Theory

Sl.No.	Topic	Time
1	<b>FUNDAMENTALS AND PERSONNEL MANAGEMENT</b> Definition - Functions and Principles of Management - Personnel Management – Meaning and Objectives – Selection – Recruitment - Placement and Training of Employees - Training Procedures - Definition of Job Analysis and Job Evaluation - Wages – Components - Systems of Wage payments - Incentive plans - their merits and demerits - Factors affecting Wages and Compensation - Labour Welfare activities – Role of Labour Welfare Officer - Labour grievances - causes for grievances and grievance redressal procedures.	16
2	<b>PRODUCTION MANAGEMENT</b> Plant location and Site selection for Textile related Industries - Types of Industrial Buildings (Specific for Textile Industry only) - importance of Lighting – Ventilation - Humidification and Air Conditioning in Textile Industry - Productivity – Definition of Machine Productivity and Labour Productivity - Work Study – Method Study and Work Measurement – Definition and Objectives - Production Layouts – Different types of Layouts - their merits and demerits. Production Planning and Control (PPC) – Definition and Functions. Basic idea about Enterprise Resource Planning (ERP).	16
3	<b>SUPERVISORY AND SAFETY MANAGEMENT</b> Supervision – Role of the Supervisor - Motivation and its importance. Communication – Importance and types - Barriers of Effective Communication - Leadership – Difference between a Leader and a Manager - Characteristics of Effective Leadership in Shop floor - Factory Act – 1948 – Industrial Accidents – Causes - Prevention and Precautions - Safety guards and devices used in Textile Industry.	16
4	<b>INVENTORY CONTROL AND FINANCIAL MANAGEMENT</b> Inventory Control – Holding and Ordering Cost - Economic Order Quantity (EOQ) - ABC and VED (Vital-Essential-Desirable) analysis - Importance of Material Handling in Textile Industry - Financial Management – Capital Cost - Working Capital - Sources of Finance - Importance Costing - Elements of Cost - Method of calculating Ex Mill Price - Break even analysis.	16
5	<b>EXPORT MARKETING MANAGEMENT</b> EXIM Policy of India – Benefits of International Marketing – Concepts of WTO and Globalization - Functions of TEXPROCIL, AEPC, PDEXIL and HEPC in Export Promotion Activities - Functions of Textile Committee and Textile Commissioner's Office - Export Finance – Pre shipment and Post shipment Finances – Documentary Credit – Letter of Credit. Export Price composition – Ex-Factory, FAS, FOB, C&F, CIF pricing in export - Export Procedures – Export Order Processing – Export Documents – Export Incentives.	16

**TEXT BOOKS:**

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

**REFERANCE BOOKS:**

<b>S.NO</b>	<b>TITLE</b>	<b>AUTHOR</b>	<b>PUBLISHERS</b>	<b>YEAR</b>
<b>1</b>	Industrial Eng. And Management	Balasundaram.K	Sri. Ramalingasowdeswari Publications, Coimbatore.	2005
<b>2</b>	Personnel Management Of Humoun Resoures	Mamoria.C.B	Himalaya Pubishingh House, Mumbai	1999
<b>3</b>	Orgisation Theory&Behaviour	Luthans.F	Printece Hall Of India	2001
<b>4</b>	Management Of Textile	Ormerod.A	Butter Worth &Company	1979
<b>5</b>	Industeial Eng. &Management Science	Bauga.T.R;Etal	Khanna Publisher New Delhi	1996
<b>6</b>	Business Management Theory	Singa. J.C & Mugali.V.N	Edition (5) R.Chand & Co, New Delhi	2002
<b>7</b>	Costing In Textle Mills	SITRA	SITRA, Coimbatore	2002

**VI SEMESTER**  
**TEXTILE MANAGEMENT**  
**MODEL QUESTION PAPER– 1**

Time – 3 Hours

Max.Marks – 75

**PART A.**

**Marks 15 x 1 = 15**

Note: Answer any 15 questions

1. What do you mean by management?
2. Define job analysis.
3. Briefly explain grievance.
4. What is financial incentive?
5. What are the methods of ventilation?
6. Why humidification is important in textile mills?
7. What is method study?
8. What is PPC?
9. What are barriers to communication?
10. State any 2 qualities of a leader.
11. Mention any 2 unsafe conditions leading to accidents.
12. State the main provisions of the Factories Act.
13. What is VED analysis?
14. What is working capital?
15. Mention any two sources of Industrial Finance.
16. What is break even analysis?
17. What do you mean by EXIM policy of India?
18. What is GATT?
19. State any 2 elements of export finance.
20. What is the need for export incentives?

**PART B.**

**Marks 5 × 12 = 60**

Note : Answer all the Questions

21. A. State the importance of job evaluation. Explain the methods of job evaluation

**OR**

- B. What are the components of wages? Explain the systems of wage payments.

22. A. State and explain the factors to be considered in selection of site for a textile mill.

**OR**

- B. What is work study? Explain the procedures used in method study and work measurement.

23. A. State the importance of effective communication. Explain the different types of Communication.

**OR**

**B** State the causes of industrial accidents and explain how they can be prevented.

**24. A.** Explain the break even analysis with the help of a break even chart.

**OR**

**B.** State the objectives of inventory control. What is Economic order quantity and explain how it is arrived.

**25. A.** State the Salient features of EXIM policy of India. Explain the benefits of International marketing.

**OR**

**B.** Mention the export promotion councils functioning in India and explain the role played by them.

**VI SEMESTER**  
**26061 TEXTILE MANAGEMENT**  
**MODEL QUESTION PAPER– 2**

**Time – 3 Hours**

**Max.Marks – 75**

**PART A.**

**Marks 15 x 1 = 15**

Note: Answer any 15 questions

1. State any 2 functions of management.
2. Define job evaluation.
3. State any 2 objectives of labour welfare.
4. What is meant by non financial incentives?
5. Mention any 3 factors to be considered in selection of site for a processing unit.
6. What is work study?
7. State the indices of productivity.
8. List the benefits of ERP.
9. What is motivation?
10. State any 2 qualities of a manager.
11. State any 2 causes of industrial accidents.
12. State any 2 advantages of effective communication.
13. Expand EOQ and explain.
14. State any 2 advantages of good material handling systems.
15. State the elements of costing.
16. What is capital cost?
17. What is WTO?
18. State any 2 objectives of EXIM policy.
19. What is globalization?
20. What is FOB?

**PART B.**

**Marks 5 × 12 = 60**

**Note:** Answer all the Questions.

- 21. A.** State the importance of personnel management. Explain the factors to be taken into

account in man power planning.

**OR**

- B.** State the causes of industrial disputes and the grievance redressal procedures to solve them.

- 22. A.** State and explain the different types of industrial layouts.

**OR**

- B.** Define productivity. Explain the factors affecting labour and machine productivity.
- 23. A.** What are the qualities required for effective supervision? Explain the duties and responsibilities of a supervisor in a textile unit.

**OR**

- B.** Explain the importance of motivation. What are the steps taken to motivate the employees in textile industry?
- 24. A.** State and explain the elements of costing. How will you calculate the ex mill price of cotton yarn in a spinning mill?

**OR**

- B.** Explain the material handling systems and equipments used in textile mills.
- 25. A.** Explain the procedure to be followed and the documents required to process an export order.

**OR**

- B.** Explain the various aspects involved in export price composition. Explain how you will arrive at the export price.





**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**GRAMENT MANUFACTURE**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implemented from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY

Course Code : 1060

Subject Code : 26062

Semester : VI Semester

Subject Title : Garment Manufacture

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			
	Hours /Week	Hours /Semester	Marks			Duration
Subject Code: 26062	5	80	Internal Assessment	Board Examination	Total	
Garment Manufacture			25	75	100	

### Topics and Allocation of Hours:

Unit	Topic	Time (hrs.)
1	HUMAN ANATOMY, PATTERN MAKING AND GARMENT MAKING TOOLS	16
2	PATTERN LAYOUT & CUTTING	16
3	DRAFTING AND CONSTRUCTION	16
4	PRESSING, PACKING & QUALITY CONTROL	16
5	FASHION DESIGN	16
Total		80

**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 elaborated to 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

**26062 GARMENT MANUFACTURE**

**DETAILED SYLLABUS**

Contents: Theory

<b>Unit</b>	<b>Name of the Topic</b>	<b>Hours</b>
1	<p><b>HUMAN ANATOMY, PATTERN MAKING AND GARMENT MAKING TOOLS:</b></p> <p>Human Anatomy, Measurements, Pattern Making and Garment Making Tools - Steps in garment production process from fabric to packing – Eight head theory of human anatomy – Measurement and its importance – Methods of taking important body measurements for children’s, Gent’s and Ladies garments – Importance of paper patterns – types of paper patterns – Commercial patterns &amp; personal patterns – Principles of pattern drafting – Pattern grading and its importance – Tools required for clothing construction – Measuring tools - Cutting tools –Pattern making tools – Pressing tools.</p>	16
2.	<p><b>PATTERN LAYOUT &amp; CUTTING</b></p> <p>Types of different designs of fabric – Plain – Striped – Plaid – Printed designs – Different types of lay – Pattern layout – Rules in pattern layout – Common methods for Layout – Layouts for asymmetrical designs, striped, checked and one way designs – Economy of fabrics in placing patterns – Study of spreading – Marker planning – Brief study of cutting process – Types of Cutting machines - importance of Marshden Lay and Lay length in Garment Industries.</p>	16
3	<p><b>DRAFTING AND CONSTRUCTION</b></p> <p>Parts of Sewing M/c –Types of threads and needles – Stitches - Basic hand stitch – Decorative stitches – Brief study of Lock stitch – Chain stitch – 3 thread over lock – 5 thread flat lock –Seams -Types of Seams – Pattern making - ‘A’ line frock – Gent’s shirt – Front, Back, full sleeve and collar – Basic T-Shirt – Ladies skirt and nightwear – with front yoke – Bell sleeve – Gathered pattern – Brief study of construction of ‘A’ line frock – Gent’s shirt – Front, Back, full sleeve and collar. Ladies skirt night wear.</p>	16
4	<p><b>PRESSING, PACKING &amp; QUALITY CONTROL</b></p> <p>Means of pressing – Purpose, Categories of pressing – Packing materials – Packing types – Ratio pack, Assortment pack, Color wise pack, Size wise pack – Introduction to Quality control – Brief study of Raw material inspection – In process inspection – Final inspection – Accepted Quality Level (AQL) – Industrial Engineering concepts in Garment Industry – Total Quality Management.</p>	16

5	<b>FASHION DESIGN</b>	16
Introduction to elements of Design – Line – Shape – Texture and Light – Introduction to principles of design – Balance – Proportion – Emphasis – Rhythm – Harmony - Light & Pigment theory of colours – Primary – Secondary – Tertiary colors (Intermediate color) – Warm & Cool colors – Tone - Tints and Shades – Colour dimensions and schemes - Design – Different types of structural design on dress – Different types of decorative design on dress – Concepts of fashion forecasting.		

#### TEXT BOOKS:

S.NO	Author	Title	Publisher	Edition	Year
1	Carr and Lathem	The Technology of Clothing Manufacture	Blackwell Publication Oxford UK	2 <sup>nd</sup> Indian Reprint	2004
2	Gerry Cooklin	Introduction to Clothing Manufacture	Blackwell Publication Oxford UK	2 <sup>nd</sup> 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	6 <sup>th</sup> Reprint	2001
2	Mary Mathews	Practical clothing constructions Part I & II	Paprinpack Printers, Chennai	1st Edition	1985
3	Erwine Mabel.D	Clothing for Moderns	Macmillan Pub. Co., New York.	1st Edition	1979
4	Virgin Stolpe Lewis	Comparative clothing construction Techniques	Surjeet Publications, Delhi	1st Edition	1984

**VI SEMESTER**  
**26062 GARMENT MANUFACTURE**  
**MODEL QUESTION PAPER– 1**

Time – 3 Hours

Max.Marks – 75

**PART A.**

Marks 15 x 1 = 15

**Note:** Answer any 15 questions

1. List any two tools used in cutting.
2. List any two important characteristics of measuring tools
3. List the types of paper patterns
4. List any two pressing tools
5. Define plaid fabrics
6. Who invented modern lay methods?
7. What do you mean by economic of fabrics lay?
8. Define one way design
9. List any four important parts of sewing machine.
10. List any two important characteristics of sewing threads
11. Define Seams
12. Define Stitches
13. What is the objective of pressing?
14. Define size wise packing
15. Expand AQL and TQM
16. Define quality control
17. List the elements of Design
18. List the primary colors as per pigment theory of colors.
19. Explain tint.
20. Explain Warm colours.

**PART B.**

Marks 5 x 12 = 60

**Note :** Answer all the Questions.

- 21. A.** Explain the method of taking important Body measurements for Children's Garments with neat sketches.

**OR**

- B.** Explain in detail the principles of pattern drafting.

- 22.A.** Explain the different types of fabric according to design with neat sketches.

**OR**

- B.** Explain the different Types of special Layouts with neat sketches.

- 23.A.** Explain the working of sewing machine with a neat sketch.

**OR**

**B.** How will you draft the required patterns for a Basic T-shirt?. Explain with a sketch.

**24.A.** Explain the industrial engineering concepts in Garment industry

**OR**

**B** Describe the various packing materials used in Garment Industry

**25. A.** Explain the principles of design in detail

**OR**

**B.** Explain the decorative designs on dress in detail

**VI SEMESTER**  
**26062 GARMENT MANUFACTURE**  
**MODEL QUESTION PAPER– 2**

**Time – 3 Hours**

**Max.Marks – 75**

**PART A.**

**Marks 15 x 1 = 15**

Note: Answer any 15 questions

1. List any two tools used in measuring.
- 2 List any two advantages of personal patterns.
3. List any two disadvantages of commercial patterns.
4. Define pattern grading.
- 5 List any two types of design of fabrics.
- 6 List any two types of special layouts.
7. Define the importance of Marshden Lay.
8. Define Lay length.
9. List any two machine stitches.
10. List any two seams.
11. List any four important parts of sewing machine.
12. Define decorative stitches.
13. Define ratio pack.
14. Define industrial engineering.
15. Define colour wise pack.
- 16..Define size wise pack.
17. List the three primary colors as per light theory of colors.
18. Explain shade.
19. Define fashion forecasting.
20. Define cool colours.



**PART B.**

Marks 5 × 12 = 60

Note : Answer all the Questions,

**21. A.** Explain about the method of taking important Body measurements for Men's Garments with neat sketches?

**OR**

**B.** Explain in detail about the 8 head theory of human anatomy with a neat sketch..

**22. A.** Explain the Marshden Lay's importance with a neat sketch.

**OR**

**B.** Explain the common rules in pattern layouts with a neat sketch.

**23. A.** Explain decorative stitches with example.

**OR**

**B.** Explain the patterns for ladies night wear with neat sketches.

**24. A.** Explain TQM in garment industries.

**OR**

**B.** Describe the packing materials used in garment industries.

**25. A.** Explain the elements of design with simple sketches.

**OR**

**B.** Explain the value addition of garments by decoration with neat sketches.



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**MAINTENANCE OF TEXTILE MACHINERIES**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY  
Course Code : 1060  
Subject Code : 26081  
Semester : VI Semester  
Subject Title : ELECTIVES –II MAINTENANCE OF TEXTILE MACHINERIES

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			
	Hours /Week	Hours /Semester	Marks			Duration
MAINTENANCE OF TEXTILE MACHINERIES	5	80	Internal Assessment	Board Examination	Total	
			25	75	100	

### Topics and allocation of hours:

Sl.No.	Topic	Time (hrs.)
1	Maintenance Planning, Scheduling And Controlling Of Maintenance	16
2	Stores, Assessment of Maintenance, Application of New Concepts	16
3	Gauges And Erection	16
4	Maintenance Of Spinning Machineries	16
5	Maintenance Of Weaving Knitting And Sewing Machines	16
Total		80

## **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.

## 26081 MAINTENANCE OF TEXTILE MACHINERIES

### DETAILED SYLLABUS

Content : Theory

Sl.No.	Name of Topic	Time
1	<p><b>Maintenance Planning, Scheduling And Controlling Of Maintenance</b></p> <p>Objectives and types of Maintenance - Objectives of maintenance - Types of Maintenance - Break down maintenance and Planned maintenance - Types of Planned Maintenance - Basic requirements for maintenance - Organization chart for Maintenance in textile mill for medium scale spinning mills and weaving mills - Maintenance planning - Importance of planning - Factors considered while planning - Equipment history record - recommendation of machinery manufacturer, experts - grouping of related operations - Yearly maintenance program.</p> <p>Maintenance Scheduling - Objectives of Scheduling - Weekly work order and its importance - Rescheduling of maintenance activities.</p> <p>Maintenance Control - Objective of control. Various records for effective control - machine card - emergency work order - job incomplete report - maintenance ledger - overtime work register - accident register - individual machine downtime report - monthly consumption of spares and lubrication record. Duties and responsibilities of a maintenance supervisor.</p>	16
2	<p><b>Stores, Assessment of Maintenance, Application of New Concepts</b></p> <p>Store - Definition of store – Objectives - Duties and responsibilities of store keeper - Store control - Requirements for store control - Books and records for store control – ABC analysis, bin card, indent on store, material refund note.</p> <p>Importance of co-ordination - Importance of co-ordination between maintenance, quality control and production departments.</p> <p>Maintenance Assessment - Objectives – Assessment of existing maintenance programs –machine availability - quantum of maintenance - performance index - Delay analysis - monthly performance report - Maintenance audit - New concepts in maintenance: Brief study on Total Productive Maintenance (TPM) and Selective Maintenance Program (SMP) - Importance of house keeping and idea about 5S work practice</p>	16
3	<p><b>Gauges And Erection</b></p> <p>Gauges and Tools for Maintenance - Brief study of various gauges used in textile industry - leaf gauges, flat setting gauge, dial gauge, top roller setting gauge, roller cot diameter checking gauge, pneumafil pressure checking gauge, ring diameter checking gauge, ATIRA TARP gauge - Study of Nilometer, card wire inspection microscope and Special lubricating equipment for spindle oil topping, flushing and replenishing.</p> <p>Leveling - Importance of leveling and leveling instruments.</p> <p>Vibration - Causes of vibration - Effects of vibration - Measurement of vibration - stroboscope and Shirley vibration detector - Static and dynamic balancing. Erection of card, simplex, Ring Frame and loom.</p>	16

4	<p><b>Maintenance Of Spinning Machineries</b></p> <p>Routine and Preventive maintenance - Maintenance program for Blow room, Carding, Draw frame, Comber, Simplex, spinning frame.</p> <p>Study of Changes made on machines for count changing - Maintenance of spinning machineries during strike and lock out periods.</p> <p>Procedure for Maintenance - Procedure adapted for the following maintenance operations - Card wire point clothing - card grinding - cots buffing - roller truing - top arm pressure checking - spindle and lappet gauging - Berkoloation.</p> <p>Maintenance of suction devices and waste / fly cells.</p>	16
5	<p><b>Maintenance Of Weaving Knitting And Sewing Machines</b></p> <p>Routine and Preventive maintenance - Maintenance program for winding - warping - pirn winding – sizing - plain and automatic looms.</p> <p>Maintenance of loom parts - Care and maintenance of heald, reed, shuttle, picker - Conversion of plain looms to semi automatic looms - Maintenance of weaving preparatory machines and looms during strike and lay off periods.</p> <p>Maintenance of knitting and simple sewing machines.</p> <p>Maintenance of Humidification plant.</p>	16

#### 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

## VI SEMESTER

### ELECTIVE II 26081 MAINTENANCE OF TEXTILE MACHINERIES

#### MODEL QUESTION PAPER– 1

Time – 3 Hours

Max.Marks – 75

#### PART A.

Marks 15 x 1 = 15

Note: Answer any 15 questions

1. Mention any one objective of maintenance of machines.
2. Name any two types of maintenance
3. What is EHR?
4. Mention any one record used in maintenance control
5. Define store
6. Mention any one record which is useful in store control
7. What is the use of ABC analysis?
8. What is SMP?
9. Mention any one use of leaf gauge
10. What is the function of NILO meter?
11. What is the use of Lubrister?
12. Give any one cause for vibration
13. Mention any one component that require preventive check in carding
14. What is the lubricating frequency in oiling drafting gear in Ring Frame?
15. What is cots buffing?
16. What is spindle gauging?
17. Mention any one component in warping that requires preventive check
18. What is the frequency of greasing crank shaft wheel in a loom?
19. Mention any one activity in reed maintenance
20. Explain how the size box is maintained during lock out period



**PART B.**  
**Marks 5 × 12 = 60**

21 A. What are the types of maintenance? Explain in detail.

**OR**

B. Explain how planning of maintenance is done in a textile mill

22 A. Explain the importance of bin card. Give its format.

**OR**

B. Discuss the importance of coordination between various departments

23 A. Explain the static and dynamic balancing of heavy rotating parts

**OR**

B. State the step by step procedure of card erection

24 A. Explain the routine and preventive maintenance schedule for Ring frame?

**OR**

B. Describe the procedure for Card grinding

25 A. Explain the preventive and routine maintenance program for cone winding machine.

**OR**

B. Explain how weaving preparatory machines and looms are maintained during strike and lock out period

## VI SEMESTER

### ELECTIVE II 26081 MAINTENANCE OF TEXTILE MACHINERIES

#### MODEL QUESTION PAPER– 2

Time – 3 Hours

Max.Marks – 75

#### PART A.

Marks 15 x 1 = 15

Note: Answer any 15 questions

1. Mention any one requirement for good maintenance
2. What is maintenance frequency?
3. What is rescheduling?
4. Mention any one use of over time work register
5. Define store
6. Mention any one tool that is useful in maintenance assessment
7. What is the use of bin card analysis
8. What is TMP?
9. What is the use of TARP gauge?
10. Name any two leveling instruments
11. What is the use of stroboscope in textile industry?
12. Give any one effect of vibration
13. Mention any one component that require preventive check in comber
14. What is the frequency of cot buffing in Ring Frame?
15. What is static balancing?
16. What is stripping frequency in a card?
17. Mention any one component in pirn winder that require preventive check
18. What is the frequency of over hauling of plain power loom?
19. Mention any one activity in shuttle maintenance
20. How is weavers beam maintained during strike period?

**PART B.**  
**Marks 5 × 12 = 60**

21 A. Explain the usage and format of weekly work order.

OR

B. State the duties and responsibility of a maintenance supervisor

22 A. Discuss the various records used in stores control.

OR

B Explain how the existing maintenance system can be assessed.

23 A. Explain any two gauges used in textile industry with neat sketch

OR

B. What are the causes and effects of vibration. Brief Shirley vibration detector

24 A. Give the routine and preventive maintenance schedule for Card?

OR

B. State the step by step procedure of Roving frame

25 A. Explain the preventive and routine maintenance program for sizing.

OR

B. Explain how heald shafts and reeds are maintained in loom



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**PROCESS CONTROL IN SPINNING**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY  
Course Code : 1060  
Subject Code : 26082  
Semester : VI Semester  
Subject Title : ELECTIVES –II PROCESS CONTROL IN SPINNING

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			
	Hours /Week	Hours /Semester	Marks			Duration
PROCESS CONTROL IN SPINNING	5	80	Internal Assessment	Board Examination	Total	
			25	75	100	

### Topics and allocation of hours:

Sl.No.	Topic	Time (hrs.)
1	Process control in mixing	16
2	Process control in spinning preparatory	16
3	Process control in spinning	16
4	Control of yarn quality- Count And strength	16
5	Control of yarn quality – Unevenness and imperfection	16
Total		80

**26082 PROCESS CONTROL IN SPINNING**  
**DETAILED SYLLABUS**

Content : Theory

Sl.No.	Topic	Time
1	<p><b>Process control in mixing</b></p> <p>Role and scope of process control in spinning – key variables for process control – Establishing norms or standards – collection and interpretation of data for process control – corrective action.</p> <p>Control of mixing quality and cost instrument evaluation of cotton – control of mixing quality through fibre characteristic simultaneous control of mixing cost and quality – linear programming for cotton mixing . The application of linear programming in a mill.</p> <p>Control of yarn realization and waste – adjustment to stock in process – Allowances for hankmeter records – Accounting of reusable soft waste – Norms for yarn realization – Judging yarn realization of mill.</p>	16
2	<p><b>Process control in spinning preparatory</b></p> <p>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.</p> <p>Assessing the performance of a blowroom – locating and improving machines with substandard performance – optimizing cleaning at cards – control of comber waste – optimum level of comber waste. Norms of improvement in mean length on combing – the need for routing check of comber waste – procedure for control of comber waste.</p>	16
3	<p><b>Process control in spinning</b></p> <p>Measurement and analysis of productivity – definitions of indices of productivity – measurement productivity – productivity analysis – productivity and profitability – means</p> <p>To improve productivity – maximizing machine efficiency in ring spinning – controlling the end breakage improving mechanical conditions – Renovation at Ring frame to reduce end breaks – Recording and analyzing end breakage rate. Process control measures to be adopted for Rotor spinning</p>	16
4	<p><b>Control of yarn quality- Count And strength</b></p> <p>Control of yarn quality – count and strength and their variability – Assessing processes capacity for count control – Reducing within</p>	16

	bobbin count variation – Control of sliver evenness – control of stretch at fly frames - reducing between bobbin count variation – Assessment and control of variability in blowroom and drawframes 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	<p><b>Control of yarn quality – Unevenness and imperfection</b></p> <p>Control of yarn quality - unevenness and imperfection– measurement of unevenness – Assessment of yarn unevenness. Assessment of unevenness of sliver and Roving.</p> <p>Types of yarn irregularity – Random irregularity – Periodic irregularity – Quasi – Periodic irregularity – Contributions to yarn irregularity – measurement and assessment of imperfections – causes of thick and thin places – Fibre neps – Assessment and control – Judging yarn appearance – check list for control of yarn unevenness and thick and thin places. Yarn faults and package defects.</p>	16

## 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

## VI SEMESTER

### ELECTIVE II 26082 PROCESS CONTROL IN SPINNING

#### MODEL QUESTION PAPER– 1

Time – 3 Hours

Max.Marks – 75

#### PART A.

Marks 15 x 1 = 15

**Note:** Answer any 15 questions

- 1) What is the function of process control in mixing?
- 2) Give the allowances for Hank meter
- 3) Write the key variables for process control?
- 4) Give the norms for yarn realization
- 5) Define clearing efficiency
- 6) What is the clearing efficiency of blow room?
- 7) What is the need for routine check of comber waste?
- 8) What is the percentage of noil removed for natural combing?
- 9) Define indices of productivity
- 10) Define labour employment ratio
- 11) What are the object of production control in ring spinning?
- 12) Write few causes for end breakages in spinning
- 13) What the control measures to be adopted for rotor spinning?
- 14) What is the limitations of rotor spinning?
- 15) What do you mean by control of yarn quality?
- 16) What do you mean by CSP of yarn?
- 17) What are the factors affecting yarn strength?
- 18) What the type of yarn irregularity?
- 19) What is mean by fibre neps?
- 20) Give few yarn package defects



**PART B.**  
**Marks 5 × 12 = 60**

21 A. Explain the properties and methods used for evaluation of cotton (12)

OR

B. Explain in details the control of mixing quality of fibre characteristics (12)

22 A. i. How will you control waste in cards? (6)

ii. How will you control sliver unevenness? (6)

OR

B. What are the norms for improvement in mean length on combing (12)

23 A. Explain the basic types of yarn irregularity and methods of controlling them (12)

OR

B. Explain in detail the different yarn faults and how to control them. (12)

24 A. Explain in detail the assessing processes capacity of count control (12)

OR

B. i. What are the factors effecting yarn strength? (6)

ii. Give the norms for lea strength for 40s and 60s (3)

iii What is single yarn strength and elongation for 40s and 60s (3)

25 A. Explain in detail the measurement and assessment of yarn unevenness (12)

OR

B. Explain in detail the different yarn faults and how to control them. (12)

## VI SEMESTER

### ELECTIVE II 26082 PROCESS CONTROL IN SPINNING

#### MODEL QUESTION PAPER– 2

Time – 3 Hours

Max.Marks – 75

#### PART A.

Marks 15 x 1 = 15

Note: Answer any 15 questions

- 1) What is the role of process control in spinning?
- 2) Write any three fibre characteristics required for spinning
- 3) Write the important key variables for process control
- 4) What do you mean by yarn realization?
- 5) What is the purpose of hank meter?
- 6) Write the names of necesable soft waste
- 7) What is the cleaning efficiency of blow room?
- 8) What is the cleaning efficiency of carding?
- 9) What is the percentage of noil removed for normal combing?
- 10) What is the need of noutine check for comber waste?
- 11) Define machine productivity index
- 12) Define labour employment ratio
- 13) Write few causes for end breaks in spinning
- 14) What is the limitations of rotor spinning?
- 15) Where is the machine efficiency of ring spinning frame running 80s count
- 16) What do you mean by CSP of yarn?
- 17) Write the sliver evenness for carding and draw frame sliver
- 18) What are the factors effecting the yarn strength?
- 19) Write the imperfections of yarn
- 20) Write any four yarn faults occurred during process

**PART B.**  
**Marks 5 × 12 = 60**

- 21 A.** Explain the properties and methods used for evaluation of cotton 12
- OR
- B.** Explain how the quality of mixing can be controlled 12
- 22 A.** Explain the steps involved in conducting and waste and cleaning survey of the blow room 12
- OR
- B. i** How will you control the sliver unevenness 6
- ii. Explain the procedure to control the comber waste 6
- 23 A. i.** What are the renovation work you will under take to reduce end breaks 6
- ii. How will you maximize machine efficiency in ring frame 6
- OR
- B.** Explain in detail the process control measures to be adopted for rotor spinning 12
- 24.A.** Explain in detail assessment and control of variability in blow room and draw frame 12
- (OR)
- B.** Explain the following. 12
- i. Yarn strength and TPI                      ii. Factors effecting yarn strength
- iii Single yarn strength & elongation
- 25 A.** Explain the following 12
- i . Measurement of unevenness of yarn
- ii. Judging yarn appearance
- iii, Causes of thick and thin place
- OR
- B.** Explain in details the different yarn faults and how to control them . 12



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**GARMENT MANUFACTURE PRACTICAL**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

**V SEMESTER**  
**26064 : GARMENT MANUFACTURE - PRACTICAL**

**Scheme of Instruction and Examination :**

Subject	Instruction		Examination		
	Hours /week	Hours/ Semester	Assessment Marks		
26064 GARMENT MANUFACTURE - PRACTICAL	6	96	Internal	Boar d Exam	Total
			25	75	100

**RATIONALE:**

The diploma students should necessarily have basic practical skills and knowledge to get their work done in their career 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.

**GUIDELINES:**

- All the 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.

**OBJECTIVES:**

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

## **LIST OF EXPERIMENTS:**

### **Drawing**

1. Drawing the Color Charts for Primary & Secondary Colours and 12 Colour Wheel.
2. Drawing the Color Charts for Tints & Shades of all primary and secondary colours.
3. Drawing Ladies high fashion dress and make it decorative.

### **Preparing samples**

4. Preparing hand embroidery samples with running, back & chain stitches.
5. Preparing M/c embroidery samples with running & satin stitches.
6. Preparing samples for temporary stitches.
7. Preparing samples for permanent stitches.

### **Pattern Drafting**

8. Preparing pattern for Basic T-shirt.
9. Preparing pattern for A-line frock with puff sleeve.
10. Preparing pattern for Ladies nightwear.
11. Preparing pattern for Gent's pleated waistline trousers.
12. Preparing pattern for Gent's shirt full sleeve with double pockets.

### **Construction**

13. Using the given paper pattern, construction of A- line frock.
14. Using the given paper pattern, construction of ladies nightwear.
15. Using the given paper pattern, construction of basic T-shirt.
16. Using the given paper pattern, construction of t Gents shirt with full sleeve.

**EQUIPMENT LIST:**

<b>S.No.</b>	<b>Name of Equipments</b>
1	Lock Stitch Pedal Sewing Machine
2	Lock Stitch Power Machine
3	Button Hole Sewer
4	Twin Needle Lock Stitch
5	Twin Needle Feed of the Arm
6	3-Thread Overlock
7	5-Thread Flat Lock
8	Snap Button Fastener
9	5-Needle Trimmer - Chain Stitch
10	Lock Stitch Pedal Sewing
11	Cutting Machine
12	Multi Thread Embroidery Machine
13	Collar Cuff Fusing Machine
14	Industrial Steam Ironing Press
15	Zig-Zag Sewing
16	Steam Iron Box
17	Dress forms & Mannequins
18	Beesley's Balance
19	Drafting & Cutting Table

## **26457 GARMENT MANUFACTURE - PRACTICAL**

### **MODEL QUESTION PAPER**

1. Draw the Color Charts for Primary & Secondary Colours and 12 Colour Wheel.
2. Draw the Color Charts for Tints & Shades of all primary and secondary colours.
3. Draw Ladies high fashion dress and make it decorative.
4. Prepare hand embroidery samples with running, back & chain stitches.
5. Prepare M/c embroidery samples with running & satin stitches.
6. Prepare samples for temporary stitches.
7. Prepare samples for permanent stitches.
8. Prepare pattern for Basic T-shirt.
9. Prepare pattern for A-line frock with puff sleeve.
10. Prepare pattern for Ladies nightwear.
11. Prepare pattern for Gent's pleated waistline trousers.
12. Prepare pattern for Gent's shirt full sleeve with double pockets.
13. Using the given paper pattern, construct A- line frock.
14. Using the given paper pattern, construct ladies nightwear.
15. Using the given paper pattern, construct basic T-shirt.
16. Using the given paper pattern, construct Gents shirt with full sleeve.





**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**TEXTILE CAD PRACTICAL**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY  
Course Code : 1060  
Subject Code : 26065  
Semester : VI Semester  
Subject Title : TEXTILE CAD PRACTICAL

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			
	Hours /Week	Hours /Semester	Marks			Duration
TEXTILE CAD PRACTICAL	4	64	Internal Assessment	Board Examination	Total	
			25	75	100	

### **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 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

# 26065 TEXTILE CAD PRACTICAL

## LIST OF EXPERIMENTS

### Jacquard Design Software

- Learn Step by step commands to produce a Jacquard design fabric simulation.
- Analyse of a Jacquard design fabric and produce fabric simulation in different Colour combinations.
- To produced silk saree design in Jacquard software Take graph print outs as per the requirements of loom and design creation.

### Dobby Design Software

- Learn Step by step commands to produce stripe and cross over designs.
- Learn Step by step commands to produce check designs.
- Analyze of a doobby design fabric to produce the fabric simulation in different Color combinations.
- Produce calculation sheet for a fabric with costing and printouts of doobby Fabric simulation and design details.
- Produce a combination weaves & colour shirting design

### Printed Design Software

- Produce a printed design with 6 colours and show colour separation.
- Learn Step by step commands to produce a printed design and its colour Separations.
- Learn Step by step commands to make a Texture mapping on various objects and models with new designs created in other software.

**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.

One computer for two students / 30 student in a batch

## **26065 TEXTILE CAD PRACTICAL**

### **Model question paper**

1. Produce a Jacquard design fabric simulation and write the step by step commands.
2. Analyse of a Jacquard design fabric and produce the fabric simulation in different Colour Combinations.
3. Using Jacquard design soft ware produce a design for silk saree
4. Take graph print outs as per the requirements of loom and design creation.
5. Create stripe designs by using textile CAD software.
6. Create weft bar designs by using textile CAD software
7. Create check designs by using textile CAD software.
8. Analyse the given stripe fabric, produce the fabric simulation in different Colour Combinations
9. Analyse the given check fabric, produce the fabric simulation in different Colour Combinations
10. Produce a check design for shirting design with different weaves and colours.
11. Produce Calculation sheet for a dobby design fabric with costing per square meter and other particulars
12. Produce a printed design with 6 colours and show colour separation.
13. Produce a printed design and its colour separation by using printed design software.
14. Produce Texture mapping on various objects and models with new designs created in Jacquard , Dobby and printing software
15. Produce Texture mapping on various objects and models with new designs created in Dobby software
16. Produce Texture mapping on various objects and models with new designs created in Jacquard software



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**GARMENT CAD PRACTICAL**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY  
Course Code : 1060  
Subject Code : 26066  
Semester : VI Semester  
Subject Title : GARMENT CAD PRACTICAL

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			
	Hours /Week	Hours /Semester	Marks			Duration
GARMENT CAD PRACTICAL	6	96	Internal Assessment	Board Examination	Total	
			25	75	100	

### 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 understand 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 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



## **26066 GARMENT CAD PRACTICAL**

### **List of Experiments**

#### **Pattern Drafting**

- Learning of different tools used for drafting.
- Design and draft a ladies night wear and apply a suitable colour for small size
- Design and draft a fashion kids wear and apply a contrast colour scheme
- Design and draft a T-Shirt and apply colour of any one of tint for medium size.
- Design and draft a ladies skirt with suitable colour combination
- Design and draft a ladies skirt with any suitable software
- Practicing the drafting and saving of A Line frock.
- Practicing the drafting of Ladies T- shirt pattern.
- Practicing the drafting of Ladies Night wear.
- Practicing the drafting of Full sleeve and collar for Gents shirt

#### **Pattern grading**

- Grade the given A Line frock front style to its lower and higher size.
- Grade the Full sleeve to its lower and higher size.
- Grade the back part of the Ladies "T" shirt to its higher size.

#### **Marker making and Lay Planning**

- After grading the given pattern to different sizes, Lay planning of the pieces for best fabric efficiency.

#### **Fashion Garment Design**

- Draw a fashion Top garment for Gents using suitable drawing software, colour it as per scheme.
- Draw a fashion garment for Ladies using suitable drawing software, Adopt proper colour scheme.
- Draw a Fashion children's wear using suitable drawing software, Adopt proper colour scheme.

## 26066 GARMENT CAD PRACTICAL

### Model question paper.

1. Learning of the different tools used for drafting
2. Design and draft a ladies night wear and apply a suitable colour
3. Design and draft a fashion kids wear and apply a contrast colour scheme
4. Design and draft a T-Shirt and apply suitable colour tint.
5. Design and draft a ladies skirt with suitable colour combination
7. Draft a ladies skirt with the garment CAD software
8. Draft a pattern of A Line frock, also save it in your folder.
9. Draft a pattern for Ladies T- shirt.
10. Draft a pattern for Ladies Night wear.
11. Draft a pattern for Full sleeve for Gents shirt with collar
12. Grade the given A Line frock front style to its lower and higher grades.
13. Grade the Full sleeve to its lower and higher grades and lay the pieces using pattern design system.
14. Grade the parts of the Ladies "T" shirt to its higher grade and lay the pieces using pattern design system..
15. Grade the given trouser pattern to its lower and higher grades and lay the pieces using pattern design system.
16. Draw a fashion Top garment for Gents using suitable drawing software, colour it as per scheme.
17. Draw a fashion garment for Ladies using suitable drawing software, Adopt proper colour scheme.
18. Draw a Fashionable children's wear using suitable drawing software, Adopt proper colour scheme.

**List of equipment :** 15 no. Personal computers. (Pentium IV – 512 MB RAM)  
Scanner & printer. / LAN connected.  
Garment CAD software, Coral Draw and Paint Soft wares.



**DIPLOMA IN TEXTILE TECHNOLOGY /  
DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**PROJECT WORK ENTREPRENEURSHIP,  
ENVIRONMENTAL, ENGINEERING AND  
DISASTER MANAGEMENT**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY  
Course Code : 1060  
Subject Code : 26067  
Semester : VI Semester  
Subject Title : PROJECT WORK ENTREPRENEURSHIP,  
ENVIRONMENTAL ENGINEERING AND DISASTER  
MANAGEMENT

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject Title	Instructions		Examination			
	Hours /Week	Hours /Semester	Marks			Duration
PROJECT WORK	4	64	Internal Assessment	Board Examination	Total	
			25	75	100	

### **PROJECT WORK:**

Students have to select any one topic of their own interest under the guidance of the department faculty in their area of specialization, emphasizing the principles studied in the theory and practical subjects. The selected topics must be related to Textile manufacturing process in Spinning/Weaving/Textile wet processing/Knitting/Garment making/ Problems related to quality control waste control, process control, productivity control, machinery maintenance in Textile Industries. After completing the work they have to submit their findings in the form of a report through the guide and Head of the Department. A viva-voce is conducted on the report submitted by the student. The number of students in a batch for a project work shall not exceed five.

## OBJECTIVES:

- Implement the theoretical and practical knowledge gained through the curriculum into an application suitable for a real practical working environment preferably in an industrial environment.
- Get exposure on industrial environment and its work ethics.
- Understand what entrepreneurship is and how to become an entrepreneur.
- Learn and understand the gap between the technological knowledge acquired through curriculum and the actual industrial need and to compensate it by acquiring additional knowledge as required.
- Carry out cooperative learning through synchronous guided discussions within the class in key dates, asynchronous document sharing and discussions, as well as to prepare collaborative edition of the final project report.
- Understand the facts and importance of environmental management.
- Understand and gain knowledge about disaster management.

## SCHEME OF INSTRUCTION AND EXAMINATION

Subject	Instruction		Examination		
	Hours/ Week	Hours/ Semester	Assessment Marks		
			Internal	Board Exam	Total
Project work,	4	64	25	75	100

Minimum Marks for Pass is 50 out of which minimum 35 marks should be obtained out of 75 marks in the board Examination alone.

## INTERNAL ASSESSMENT:

The internal assessment should be calculated based on the review of the progress of the work done by the student periodically as follows.

Detail of assessment	Period of assessment	Max. Marks
First Review	6 <sup>th</sup> week	10
Second Review	14 <sup>th</sup> week	10
Attendance	Entire semester	5
<b>Total</b>		<b>25</b>

## EVALUATION FOR BOARD EXAMINATION:

<b>Details of Mark allocation</b>	<b>Max Marks</b>
Marks for Report Preparation, Demo, Viva-voce	45
Marks for answers of 15 questions which is to be set by the external examiner from the given question bank consisting of questions in the following three topics Entrepreneurship, Disaster Management and Environmental Management. Out of fifteen questions five questions to appear from each of the above topics i.e. 5 questions x 3 topics = 15 questions  15 questions x 2marks = 30 Marks	30
<b>Total</b>	<b>75</b>

### DETAILED SYLLABUS

#### **ENTREPRENEURSHIP, ENVIRONMENTAL & DISASTER MANAGEMENT**

##### **1. ENTREPRENEURSHIP**

- 1.1 Introduction – Entrepreneur - characteristics of Entrepreneur - contributions of an Entrepreneur - functions of entrepreneur - Barriers to entrepreneurship - Roll of government in Entrepreneurial development.
- 1.2 Small scale industries (SSI) - SSI role in country's economic growth – importance of SSI - starting of an SSI - Government organization and Non-governmental organizations supporting SSI - DIC, NSIC, SIDO, KVIC, Development banks and their objectives - role of commercial banks in assisting SSI - Women entrepreneurs and opportunities – Subsidy and concessions to Small Scale Industries.

##### **2. ENVIRONMENTAL MANAGEMENT**

- 2.1 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.
- 2.2 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.
- 2.3 Waste water management – Characteristics of Industrial effluents – Treatment and disposal methods – Pollution of water sources and effects on human health.
- 2.4 Air pollution management – Sources and effects – Dispersion of air pollutants – Air pollution control methods – Air quality management.
- 2.5 Noise pollution management – Effects of noise on people – Noise control methods.

### **3. DISASTER MANAGEMENT**

- 3.1 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..
- 3.2 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.
- 3.3 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. ENTREPRENEURSHIP**

1. Define the term Entrepreneur.
2. What is Entrepreneurship? Explain.
3. List the various stages of decisions an entrepreneur has to make before reaching the goal of his project.
4. What is innovation?
5. State briefly the role of an entrepreneur in the economic growth of a country.
6. List the characteristics of an Entrepreneur.
7. What are the critical elements of an Entrepreneur?
8. State the major functions of an Entrepreneur.
9. What are barriers to Entrepreneurship?
10. Define Small Scale Industry.
11. What are the qualities of Entrepreneur?
12. What are the benefits of Entrepreneur?
13. What are the various SSI that can flourish in your district?
14. Identify the infrastructural needs for an industry.
15. What are the various agencies involved in the establishment and development of various SSI?
16. Name some of the agencies funding SSI.
17. Explain the roles played by Government in Entrepreneurial development.
18. What are the various concessions and incentives available for a SSI.

19. Name some consumer products with wide demand that can be manufactured by a SSI?
20. What is feasibility study?
21. What is the importance of SSI?
22. What is DIC? State its functions.
23. What is NSIC? State its functions.
24. What is SIDO? State its functions.
25. Name the Development Banks in India working towards Entrepreneurial development.
26. State the role of commercial bank in assisting SSI sector.
27. What are the different phases of Entrepreneurial Development programme?
28. What is an Industrial Estate?
29. What are the facilities available in an Industrial Estate?
30. Identify the various training agencies associated with SSI.
31. List the governmental agencies from whom you shall get financial assistance for a SSI.
32. What is KVIC? State its objectives.
33. Name some state finance corporations.
34. What are the steps involved in preparing a feasibility report?
35. What are the factors to be considered regarding raw materials for a SSI?
36. What are the features of a SSI?
37. What are the advantages of becoming an Entrepreneur?
38. Name the Organizations offering assistance for the development of Women entrepreneurs.
39. State the business opportunities for Women entrepreneurs.
40. State the different subsidies given to SSI's.

## **2. ENVIRONMENTAL 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?

### **3. 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 inmates of a multistory building are to be evacuated 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 nearby 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 safety measures taken by them are found to be inadequate.
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**



# **DIPLOMA IN TEXTILE TECHNOLOGY SANDWICH**

**L - SCHEME**

**2011 - 2012**

**INDUSTRIAL TRAINING & VIVA VOCE**

**DIRECTORATE OF TECHNICAL EDUCATION  
GOVERNMENT OF TAMILNADU**

## L-SCHEME

(Implements from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN TEXTILE TECHNOLOGY (SANDWICH)  
Course Code : 2060  
Subject Code : 26092  
Semester : VII Semester  
Subject Title : INDUSTRIAL TRAINING & VIVA VOCE

### TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject Title	Industrial Training		Examination			
	Days /Week	Weeks /Semester	Marks			Duration
INDUSTRIAL TRAINING & VIVA VOCE	6	16	Internal Assessment	Board Examination	Total	
			25	75	100	

Each student has to undergo industrial Training in Textile Industries for a period of 16 weeks during VII Semester.

**ALLOTMENT OF MARKS:**

TIME: 3 HRS.

MAX.MARKS: 100

Industrial Review I ( 6 <sup>rd</sup> week )	10
Industrial Review II (12th week)	10
Attendance	05

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Total	75
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**Board Examination**

Report writing	45
Viva Voce	30

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Total	75
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