



DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

II & III YEAR

SEMESTER PATTERN

N – SCHEME

IMPLEMENTED FROM 2020– 2021

CURRICULUM DEVELOPMENT CENTRE

DIRECTORATE OF TECHNICAL EDUCATION

CHENNAI – 600 025, TAMILNADU

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

DIPLOMA IN ENGINEERING / TECHNOLOGY SYLLABUS

N SCHEME

(Implemented from the Academic Year 2020 - 2021 onwards)

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DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING) (1068)

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DIPLOMA COURSES IN ENGINEERING/TECHNOLOGY

(SEMESTER SYSTEM)

(Implemented from 2020 - 2021)

N – SCHEME

REGULATIONS*

**Applicable to the Diploma Courses other than Diploma in Hotel Management & Catering Technology.*

1. Description of the Course:

a. Full Time (3 years)

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

b. Sandwich (3½ years)

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

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

c. Part Time (4 years)

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

*** Each Semester will have 16 weeks duration of study with 35 hrs. / Week for Regular Diploma Courses and 18 hrs. / Week for Part-Time Diploma Courses.**

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 2020 – 2021 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, Tamil Nadu.

(Or)

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

(Or)

The Matriculation Examination of Tamil Nadu.

(Or)

Any other Examinations recognized as equivalent to the above by the Board of Secondary Education, Tamil Nadu.

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 Tamil Nadu affiliated to the Tamil Nadu Higher Secondary Board with eligibility for University Courses of study or equivalent examination & Should have studied the following subjects.

A pass in 2 Years ITI with appropriate Trade or Equivalent examination.

Sl. No	Courses	H.Sc Academic	H.Sc Vocational		Industrial Training Institutes Courses
		Subjects Studied	Subjects Studied		
			Related subjects	Vocational subjects	
1.	All the Regular and Sandwich Diploma Courses	Physics and Chemistry as compulsory along with Mathematics / Biology	Maths / Physics / Chemistry	Related Vocational Subjects Theory& Practical	2 years course to be passed with appropriate Trade
2.	Diploma Course in Commercial Practice	English & Accountancy English & Elements of Economics English & Elements of Commerce	English & Accountancy, English & Elements of Economics, English & Management Principles & Techniques, English & Typewriting	Accountancy & Auditing, Banking, Business Management, Co-operative Management, International Trade, Marketing & Salesmanship, Insurance & Material Management, Office Secretaryship.	-

- For the Diploma Courses related with Engineering/Technology, the related / equivalent subjects prescribed along with Practical may also be taken for arriving the eligibility.
- Branch will be allotted according to merit through counseling by the respective Principal as per communal reservation.
- For admission to the Textile Technology, Leather Technology, Printing Technology, Chemical Technology and Commercial Practice Diploma courses the candidates studied the related subjects will be given first preference.

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

4. Age Limit: No Age limit.

5. Medium of Instruction: English

6. Eligibility for the Award of Diploma:

No candidate shall be eligible for the Diploma unless he/she has undergone the prescribed course of study for a period of not less than 3 academic years in any institution affiliated to the State Board of Technical Education and Training, Tamil Nadu, 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

This will come into effect from N Scheme onwards i.e. from the academic year 2020-2021.

7. Subjects of Study and Curriculum outline:

The subjects of study shall be in accordance with the syllabus prescribed from time to time, both in theory and practical subjects.

The curriculum outline is given in Annexure – I.

8. Examinations:

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

The internal assessment marks for all the subjects will be awarded on the basis of continuous internal assessment earned during the semester concerned. For each subject 25 marks are allotted for internal assessment. Board Examinations are conducted for 100 marks and reduced to 75.

The total marks for result are $75 + 25 = 100$ Marks.

9. Continuous Internal Assessment:

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. Average of the these two test marks will be taken and the marks to be reduced to:

05 Marks

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

05 Marks

TEST	UNITS	WHEN TO CONDUCT	MARKS	DURATION
Test I	Unit – I & II	End of 6 th week	50	2 Hrs
Test II	Unit – III & IV	End of 12 th week	50	2 Hrs
Test III	Model Examination: Covering all the 5 Units. (Board Examinations-question paper-pattern).	End of 16 th week	100	3 Hrs

From the Academic Year 2020 – 2021 onwards.

Question Paper Pattern for the Test - I and Test – II is as follows. The tests should be conducted by proper schedule. Retest marks should not be considered for internal assessment.

Without Choice:

Part A Type questions:	6 Questions × 1 mark	06 marks
Part B Type questions:	7 Questions × 2 marks	14 marks
Part C Type questions:	2 Questions × 15 marks	30 marks
Total		50 marks

iii) Assignment

5 Marks

For each subject Three Assignments are to be given each for 20 marks and the average marks scored should be reduced for 5 marks.

iv) Seminar Presentation

5 Marks

The students have to select the topics either from their subjects or general subjects which will help to improve their grasping capacity as well as their capacity to express the subject in hand. The students will be allowed to prepare the material for the given topic using the library hour and they will be permitted to present seminar (For First and Second Year, the students will be permitted to present the seminar as a group not exceeding six members and each member of the group should participate in the presentation. For the Third Year, the students should present the seminar individually.) The seminar presentation is mandatory for all theory subjects and carries 5 marks for each theory subject. The respective subject faculty may suggest topics to the students and will evaluate the submitted materials and seminar presentation. (2 ½ marks for the material submitted in writing and 2 ½ marks for the seminar presentation). For each subject minimum of two seminars are to be given and the average marks scored should be reduced to 5 marks.

All Test Papers, Assignment Papers / Notebooks and the seminar presentation written material after getting the signature with date from the students must be kept in safe custody in the department for verification and audit. It should be preserved for one semester after publication of Board Exam results and produced to the flying squad and the inspection team at the time of inspection/verification.

A. For Practical Subjects:

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

a) Attendance : **5 Marks**

(Award of marks same as theory subjects)

b) Procedure/ observation and tabulation/

Other Practical related Work : **10 Marks**

c) Record writing : **10 Marks**

TOTAL : 25 Marks

- *All the Experiments/Exercises indicated in the syllabus should be completed and the same to be given for final Board examinations.*
- The observation note book / manual should be maintained for 10 marks. The observation note book / manual with sketches, circuits, programme, reading and calculation written by the students manually depends upon the practical subject during practical classes should be evaluated properly during the practical class hours with date.
- The Record work for every completed exercise should be submitted in the subsequent practical classes and marks should be awarded for 10 marks 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 (including Observation and Record writing) and the marks awarded for attendance is to be added to arrive at the internal assessment mark for Practical. (20+5=25 marks)
- Only regular students, appearing first time have to submit the duly signed bonafide record note book/file during the Practical Board Examinations.

All the marks awarded for Assignments, Tests, Seminar presentation and Attendance should be entered periodically in the Personal Theory Log Book of the staff, who is handling the theory subject.

The marks awarded for Observation, Record work and Attendance should be entered periodically in the Personal Practical Log Book of the staff, who is handling the practical subject.

10. Communication Skill Practical, Computer Application Practical and Physical

Education:

The Communication Skill Practical and Computer Application Practical with more emphasis are being introduced in First Year. Much Stress is given to increase the Communication skill and ICT skill of students.

As per the recommendation of MHRD and under Fit India scheme, the Physical education is introduced to encourage students to remain healthy and fit by including physical activities and sports.

11. Project Work and Internship:

The students of all the Diploma Courses 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, Tamil Nadu. 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. The project work is approved during the V semester by the properly constituted committee with guidelines.**

a) Internal assessment mark for Project Work & Internship:

Project Review I	...	10 marks
Project Review II	...	10 marks
Attendance	...	05 marks (Award of marks same as theory subject pattern)
Total	...	25 marks

Proper record should be maintained for the two Project Reviews and preserved for one semester after the publication of Board Exams results. It should be produced to the flying squad and the inspection team at the time of inspection/verification.

b) Allocation of Marks for Project Work & Internship in Board Examinations:

Demonstration/Presentation	25 marks
Report	25 marks
Viva Voce	30 marks
Internship Report	20 marks
Total	100* marks

*Examination will be conducted for 100 marks and will be converted to 75 marks.

c) Internship Report:

The internship training for a period of two weeks shall be undergone by every candidate at the end of IV / V semester during vacation. The certificate shall be produced along with the internship report for evaluation. The evaluation of internship training shall be done along with final year "Project Work & Internship" for 20 marks. The internship shall be undertaken in any industry / Government or Private certified agencies which are in social sector / Govt. Skill Centres / Institutions / Schemes.

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

12. Scheme of Examinations:

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

13. Criteria for Pass:

1. No candidate shall be eligible for the award of Diploma unless he/she has undergone the prescribed course of study successfully in an institution approved by AICTE and affiliated to the State Board of Technical Education & Training, Tamil Nadu and pass all the subjects prescribed in the curriculum.
2. A candidate shall be declared to have passed the examination in a subject if he/she secures not less than *40% in theory subjects* and *50% in practical 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 *40 marks out of 100 marks in the Board Theory Examinations and a minimum of 50 marks out of 100 marks in the Board Practical Examinations.*

14. Classification of successful candidates:

Classification of candidates who will pass out the final examinations from April 2023 onwards (Joined first year in 2020 -2021) will be done as specified below.

First Class with Superlative Distinction:

A candidate will be declared to have passed in **First Class with Superlative Distinction** if he/she secures not less than 75% of the marks in all the subjects and passes all the semesters in the first appearance itself and passes all subjects within the stipulated period

of study 2 / 3 / 3½ / 4 years [Full time (lateral entry)/Full Time/Sandwich/Part Time] without any break in study.

First Class with Distinction:

A candidate will be declared to have passed in **First Class with Distinction** if he/she secures not less than 75% of the aggregate marks in all the semesters put together and passes all the semesters except the I and II semester in the first appearance itself and passes all subjects within the stipulated period of study 2 / 3 / 3½ / 4 years [Full time (lateral entry)/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 the semesters put together and passes all the subjects within the stipulated period of study 2 / 3 / 3½ / 4 years [Full time(lateral entry)/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 classifications are also applicable for the Sandwich / Part-Time students who pass out Final Examination from October 2023 /April 2024 onwards (both joined First Year in 2020 -2021)

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

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

ANNEXURE I

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMIL NADU DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course code: 1068

N SCHEME

(Implemented from the Academic year 2020 – 2021 onwards)

CURRICULUM OUTLINE

THIRD SEMESTER

Subject Code	SUBJECT	HOURS PER WEEK			
		Theory Hours	Tutorial / Drawing	Practical hours	Total Hours
4066310	Fibre Science and Yarn Manufacture #	5	-		5
4067320	Basic Knitting Technology	5	-		5
4066330	Apparel Designing #	5	-		5
4067340	Knit Structures –I Practical		-	5	5
4067350	Embroidery Practical		-	4	4
4067360	Apparel Designing Practical		-	4	4
4067370	Woven Garment Pattern Drafting Practical			4	4
Extra Co-curricular activities	Physical Education			2	2
	Library / Seminar			1	1
TOTAL		15	-	20	35

Common with Garment Technology

FOURTH SEMESTER

Subject Code	SUBJECT	HOURS PER WEEK			
		Theory Hours	Tutorial / Drawing	Practical hours	Total Hours
4066410	Apparel Production Planning and Control #	5			5
4067420	Advanced Knitting Technology	5			5
4066430	Clothing Machinery and Equipment #	5			5
4066440	Pattern Drafting and Construction – I #	5			5
4067450	Textile Manufacturing Process Practical			4	4
4067460	Knit Structures – II Practical			4	4
4067470	Knitted Garment Pattern Drafting Practical			4	4
Extra Co-curricular activities	Physical Education			2	2
	Library / Seminar			1	1
	Internship – I (2Weeks)	During Summer Vacation			
TOTAL		20		15	35

Common with Garment Technology

FIFTH SEMESTER

Subject Code	SUBJECT	HOURS PER WEEK			
		Theory Hours	Tutorial / Drawing	Practical hours	Total Hours
4060510	Textile Testing **	5			5
4060520	Textile Wet Processing **	5			5
	Elective I				
4066531	Apparel Merchandising #	5			5
4060532	Technical Textiles **				
4067540	Textile Testing Practical *			4	4
4067550	Textile Wet Processing Practical **			4	4
4067560	Woven Garment Construction Practical			5	5
4067570	Entrepreneurship & Start-ups Practical			4	4
Extra Co-curricular activities	Physical Education			2	2
	Library / Seminar			1	1
	Summer Internship –II (2 Weeks)	During Winter Vacation			
TOTAL		15		20	35

SIXTH SEMESTER

Subject Code	SUBJECT	HOURS PER WEEK			
		Theory Hours	Tutorial / Drawing	Practical hours	Total Hours
4060610	Textile Management**	5			5
4066620	Apparel Quality Control #	5			5
	Elective II				
4067631	Knitted Garment Construction	5			5
4066632	Fashion Draping #				
4067640	Knitted Garment Construction Practical			6	6
4067650	Garment CAD Practical			5	5
4067660	Project work and Internship			6	6
Extra Co-curricular activities	Physical Education			2	2
	Library / Seminar			1	1
TOTAL		15		20	35

**** Common with Textile Technology****# Common with Garment Technology**

ANNEXURE II

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMIL NADU DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course code: 1068

N SCHEME

(Implemented from the Academic year 2020 – 2021 onwards)

SCHEME OF VALUATION

THIRD SEMESTER

SUBJECT CODE NO	SUBJECT	EXAMINATION MARKS		TOTAL MARKS	MINIMUM PASS MARK	DURATION OF EXAM (HOURS)
		INTERNAL ASSESSMENT MARK	BOARD EXAM MARK (CONVERTED TO 75)			
4066310	Fibre Science and Yarn Manufacture #	25	100	100	40	3
4067320	Basic Knitting Technology	25	100	100	40	3
4066330	Apparel Designing #	25	100	100	40	3
4067340	Knit Structures –I Practical	25	100	100	50	3
4067350	Embroidery Practical	25	100	100	50	3
4067360	Apparel Designing Practical	25	100	100	50	3
4067370	Woven Garment Pattern Drafting Practical	25	100	100	50	3

Common with Garment Technology

FOURTH SEMESTER

SUBJECT CODE NO	SUBJECT	EXAMINATION MARKS		TOTAL MARKS	MINIMUM PASS MARK	DURATION OF EXAM (HOURS)
		INTERNAL ASSESSMENT MARK	BOARD EXAM MARK (CONVERTED TO 75)			
4066410	Apparel Production Planning and Control #	25	100	100	40	3
4067420	Advanced Knitting Technology	25	100	100	40	3
4066430	Clothing Machinery and Equipment #	25	100	100	40	3
4066440	Pattern Drafting and Construction - I	25	100	100	40	3
4067450	Textile Manufacturing Process Practical	25	100	100	50	3
4067460	Knit Structures – II Practical	25	100	100	50	3
4067470	Knitted Garment Pattern Drafting Practical	25	100	100	50	3

Common with Garment Technology

FIFTH SEMESTER

SUBJECT CODE NO	SUBJECT	EXAMINATION MARKS		TOTAL MARKS	MINIMUM PASS MARK	DURATION OF EXAM (HOURS)
		INTERNAL ASSESSMENT MARK	BOARD EXAM MARK (CONVERTED TO 75)			
4060510	Textile Testing **	25	100	100	40	3
4060520	Textile Wet Processing **	25	100	100	40	3
	Elective I					
4066531	Apparel Merchandising #	25	100	100	40	3
4060532	Technical Textiles **	25	100	100	40	3
4067540	Textile Testing Practical *	25	100	100	50	3
4067550	Textile Wet Processing Practical **	25	100	100	50	3
4067560	Woven Garment Construction Practical	25	100	100	50	3
4067570	Entrepreneurship & Start-ups Practical \$	25	100	100	50	3

**** Common with Textile Technology**

Common with Garment Technology

SIXTH SEMESTER

SUBJECT CODE NO	SUBJECT	EXAMINATION MARKS		TOTAL MARKS	MINIMUM PASS MARK	DURATION OF EXAM (HOURS)
		INTERNAL ASSESSMENT MARK	BOARD EXAM MARK (CONVERTED TO 75)			
4060610	Textile Management*	25	100	100	40	3
4066620	Apparel Quality Control #	25	100	100	40	3
	Elective II					
4067631	Knitted Garment Construction	25	100	100	50	3
4066632	Fashion Draping #	25	100	100	50	3
4067640	Knitted Garment Construction Practical	25	100	100	50	3
4067650	Garment CAD Practical	25	100	100	50	3
4067660	Project work and Internship	25	100	100	50	3

* Common with Textile Technology

** Common with all branches

ALTERNATIVE SUBJECTS

Sub code	EXISTING SUBJECTS (M – SCHEME)	PROPOSED SUBJECTS (N - SCHEME)
III SEMESTER		
36031	FIBRE SCIENCE AND TECHNOLOGY	4066310 FIBRE SCIENCE AND YARN MANUFACTURE
36732	BASIC WEFT KNITTING	4067320 BASIC KNITTING TECHNOLOGY
36633	APPAREL DESIGNING	4066330 APPAREL DESIGNING
36734	BASIC WEFT KNITTING – PRACTICAL	4067340 KNIT STRUCTURES - I PRACTICAL
36735	GARMENT PATTERN DRAFTING AND GRADING – PRACTICAL	4067370 WOVEN GARMENT PATTERN DRAFTING PRACTICAL
36636	APPAREL DESIGNING- PRACTICAL	4067360 APPAREL DESIGNING PRACTICAL
30001	COMPUTER APPLICATIONS PRACTICAL	40002 COMPUTER APPLICATION PRACTICAL
IV SEMESTER		
36141	TECHNOLOGY OF YARN MANUFACTURE	-
36142	TECHNOLOGY OF FABRIC MANUFACTURE	-
36643	CLOTHING MACHINERY & EQUIPMENT	4066430 CLOTHING MACHINERY AND EQUIPMENT
36744	ADVANCED WEFT KNITTING	-
36745	TECHNOLOGY OF YARN & FABRIC MANUFACTURE – PRACTICAL	4067450 TEXTILE MANUFACTURING PROCESS PRACTICAL
36746	ADVANCED WEFT KNITTING – PRACTICAL	-
30002	LIFE SKILLS AND EMPLOYABILITY PRACTICAL	40002 ENGLISH COMMUNICATION PRACTICAL

V SEMESTER		
36051	TEXTILE TESTING	4060510 TEXTILE TESTING
36052	TEXTILE WET PROCESSING	4060520 TEXTILE WET PROCESSING
36753	WARP KNITTING AND HOSIERY MANUFACTURE	4067420 ADVANCED KNITTING TECHNOLOGY
36671	APPAREL MERCHANDISING	4066531 APPAREL MERCHANDISING
36772	FASHION ILLUSTRATION AND DESIGNING	-
36055	TEXTILE TESTING – PRACTICAL	4067540 TEXTILE TESTING PRACTICAL
36056	TEXTILE WET PROCESSING– PRACTICAL *	4067550 TEXTILE WET PROCESSING PRACTICAL
36757	WARP KNITTING AND HOSIERY MANUFACTURE – PRACTICAL	-
VI SEMESTER		
36061	TEXTILE MANAGEMENT*	4060610 TEXTILE MANAGEMENT*
36662	APPAREL QUALITY CONTROL	4066620 APPAREL QUALITY CONTROL
36641	APPAREL PRODUCTION PLANNING AND CONTROL	4066641 APPAREL PRODUCTION PLANNING AND CONTROL
36782	KNITTED GARMENT CONSTRUCTION	4067631 KNITTED GARMENT CONSTRUCTION
36764	FASHION ILLUSTRATION AND DESIGNING – PRACTICAL	-
36765	KNITTED GARMENT CONSTRUCTION – PRACTICAL	-
36766	COMPUTER AIDED DESIGN IN APPAREL MANUFACTURE - PRACTICAL	4067650 GARMENT CAD PRACTICAL
36767	PROJECT WORK	-

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4066310

Semester: III Semester

Subject Title: FIBRE SCIENCE AND YARN MANUFACTURE

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	
4066310 Fibre Science and Yarn Manufacture	5	80	25	100*	100	3 Hrs

* Examinations will be conducted for 100 marks and will be reduced to 75 marks.

Topics and Allocation of Hours:

S. No	Topics	Hours
I	Natural Fibres	15
II	Man Made Fibres (MMF)	15
III	Yarn Manufacturing Process	15
IV	Post Spinning And Man-Made Filaments Processing	14
V	Commercial Yarns	14
	Test & Revision	7
Total		80

RATIONALE:

Textile begins with Fibres. The introduction to Fibre science is the basics for all Textiles and Garment related manufacturing. The application of fibre science makes the industries to produce right kind of products with required properties and end usage. The yarn manufacture part of this section provides a basic knowledge on the manufacturing of different types of yarn in the textile industry. This will make the students to select the appropriate raw material for Garment production.

The various divisions of Fibre science & Yarn Manufacture like Introduction and Natural Fibres, Synthetic Fibres, Yarn Manufacturing Process, Post Spinning and Man Made Filament Processing, Commercial yarns provide the foundation by enlightening the **Type of Fibres that dominates the Textile products, the basic production processes of yarn manufacturing and the different types of commercial yarns available in the markets.**

OBJECTIVES:

At the end of the study of III Semester the student will be able to

- Understand the classification & importance of Textile fibres.
- Acquire knowledge on properties and uses of Natural, Man-made, Synthetic fibres.
- Understand the properties & uses of specialty fibres.
- Study the manufacturing processes of Viscose Rayon, Polyester and Nylon 6
- Know the production sequence of Combed & Carded yarns.
- Gain knowledge on the latest spun yarn production systems.
- Understand the Post spinning process sequence.
- Learn about Texturisation, its types and manufacturing.
- Understand the types, properties and uses of fancy yarns.
- Study the manufacturing details of sewing thread.

4066310 FIBRE SCIENCE AND YARN MANUFACTURE

DETAILED SYLLABUS

Contents: Theory

Unit	Name of the Topics	Hours
I	NATURAL FIBRES Textile Fibres – Definition – Classification – Important properties of an ideal Textile Fibre. Identification of Textile Fibres - Burning test, Solvent test and Microscopic appearance (Cotton, Silk, Wool, Polyester, Nylon and Acrylic). Cotton fibres – Content – Indian varieties - Properties – uses. Properties of Linen, Flax and Jute fibres. Silk Fibre – Varieties - Degumming of silk – Weighting of silk - Properties - Uses. Wool fibre – Varieties based on fleece – Properties and uses – Comparison between Worsted yarn and Woolen yarn.	15
II	MAN MADE FIBRES (MMF) Produced forms of MMF – Flow chart of MMF production - Wet, Melt and Dry spinning system. Viscose rayon – Manufacturing flow chart - Properties and uses. Properties of Lyocell, Modal, Banana and Bamboo. Polyester fibre (PET) – Manufacture flow chart - Properties and uses. Nylon 6-6 fibre – Manufacturing flow chart – Properties and uses. Filament yarn and Staple fibre manufacturing process. Brief study of Nano (Micro) fibres.	15
III	YARN MANUFACTURING PROCESS Object of Ginning - Objects of Mixing and Blending - Sequence of processes involved in Carded and Combed yarn manufacturing - Objects of blow room, carding, drawing, comber, simplex & ring frame - Differences between carded and combed yarn. Brief study of open end spinning - Differences between ring yarn and OE yarn - Brief study of Compact, Friction, Vortex and Air-jet spun yarn production systems.	15
IV	POST SPINNING AND MAN-MADE FILAMENTS PROCESSING Objects of Doubling - Passage of material in Ring doubling machine. Objects Two for One Twister - Passage of material in Two for One Twister (TFO). Reeling – Objects – Passage of material in 7 lea reeling machine. Brief study of Bundling & Bale processes. Texturisation - Definition –	14

	Objects – Study of texturing of yarn by Draw Texturisation and Air Texturisation methods.	
V	COMMERCIAL YARNS Definition of – Slub yarns – Fibre / Color injected yarns – Boucle yarn – Gimp yarn – Spot and Knot yarns – Loop or Curl yarn – Grandrelle yarns – Spiral or Cork screw yarns – Chenille yarn – Covered yarn – Core yarn – Neppy yarn – mélange yarns- Elastomeric yarns – Metallic yarns (No method of production details). Sewing threads – Manufacturing flow chart for cotton and spun polyester sewing thread manufacture, 2 ply & 3 ply yarns. Embroidery threads –Viscose Rayon and Trilobal polyester thread - Properties.	14

TEXT BOOKS:

Title	Authors	Publishers	Year
A Text book of Fibre science and Technology	S.P.Mishra	New Age International Pvt. Ltd, Delhi- 110002	2005
Yarn Preparation	Sengupta	The Textile Institute, Manchester, UK	1970
Textiles Fibre to Fabric	Corbman	Mc Graw-Hill international editions, Singapore	1983
Textile Science	E.P.G. Gohl, L.D.Vilensky	CBS Publishers & Distributers, Delhi.	1990
Textile Terms and definitions	The Textile Institue, UK	The Textile Institue, UK	1975
Man-Made fibres	William Moncrieff	Butter worth & Co. Ltd., London	1975

REFERENCE BOOKS:

Title	Authors	Publishers	Year
Manual of cotton Spinning	Shirley. C	The Textile Institute, Manchester, UK	1965
Practical guide to opening & Carding	Klein.W	The Textile Institute, Manchester, UK	1987
Open End Spinning	Rohlena	Elsevier Scientific Publishing Co.,	1974
Handbook of Textile fibres Vol I & II- Natural Fibres	J.Gardon Cook	Wood Head Publishing Ltd	2005
Spinning of Man-mades and Blends on Cotton	Salhotra K R	Textile Association(India), Mumbai	-

Board Examination-Question Paper Pattern
for Fibre Science and Yarn Manufacture subject

Note: Clarkes Table and Programmable Calculators are not permitted.

Relevant data should be provided in the question paper for solving the problems if any required.

Time: 3 Hrs.

Max.Marks:100

PART – A Five questions will be asked covering all units. All questions are to be answered. Each question carries 1 mark.

PART- B Fifteen questions will be asked covering all the units. Three questions from each unit. Answer any ten questions. Each question carries 2 marks.

PART-C Five questions will be asked Either or type. One question from every unit. Answer either A or B. Each question carries 15 marks. A and B have Subdivisions. (7 + 8)

The questions are to be numbered from 1 to 25. All the units are to be covered with equal weight age.

PART A Definitions and Statements. Question Number 1 to 5	5 X 1 = 5 Marks
PART B Short answer type questions Question Number 6 to 20	10 X 2 = 20 Marks
PART C Descriptive answer type questions (Either A or B) Question number 21 to 25	5 X15 = 75 Marks
TOTAL	100 Marks *

Note: Board Examinations will be conducted for 100 Marks and converted to 75 Marks.

MODEL QUESTION PAPER

Subject: Fibre Science and Yarn manufacture

Time: 3 Hrs.

Max. Marks: 100

PART A

Answer all the Questions

(5 x 1 = 5)

1. Define - Textile fibre.
2. What are the forms of manmade fibre?
3. What is the main objective of carding?
4. What is doubling?
5. What is core yarn?

PART B

Answer any 10 Questions

(10x 2 = 20)

6. Classify the textile fibre.
7. What are the types of silk?
8. What you mean worsted yarn?
9. What is main property of Bamboo fibre?
10. What is Nano fibre?
11. Mention the raw material used for Nylon 6-6 manufacturing.
12. What is the object of Mixing?
13. What is the object of combing?
14. Compare OE and Ring yarn.
15. Define – Texturisation.
16. What is the object of Reeling?
17. What is the object of TFO?
18. What is core yarn?
19. What is 2ply yarn?
20. What is the property of Rayon thread?

PART C

Answer all the Question, Choosing either A or B from each question (5 x 15 = 75)

- | | | | |
|----|---|---|---|
| 21 | A | (i) Explain the important properties of an ideal textile fibre. | 8 |
| | | (ii) Explain in detail about the identifications of textile fibre. | 7 |
| | | (OR) | |
| | B | (i) Explain the properties of cotton fibre. | 8 |
| | | (ii) Explain the classification of wool based on fleece. | 7 |
| 22 | A | (i) State the flow chart of Man-made fibre production. | 8 |
| | | (ii) Explain the process of filament yarn manufacturing process. | 7 |
| | | (OR) | |
| | B | (i) Draw the flow chart of Viscose rayon production. | 8 |
| | | (ii) Explain the different types of MMF spinning system. | 7 |
| 23 | A | (i) Explain the sequence of process involved in carded yarn production. | 8 |
| | | (ii) Differentiate carded yarn and combed yarn. | 7 |
| | | (OR) | |
| | B | (i) Explain briefly about the friction spinning process. | 8 |
| | | (ii) Explain briefly about the Air-jet spinning process. | 7 |
| 24 | A | (i) Explain the passage of material in Ring doubling machine. | 8 |
| | | (ii) Explain the Draw Texturisation with neat sketch. | 7 |
| | | (OR) | |
| | B | (i) Explain the passage of material in 7 lea reeling machine. | 8 |
| | | (ii) Explain the Air Texturisation with neat sketch. | 7 |
| 25 | A | (i) Draw the flow chart of cotton sewing thread manufacturing. | 8 |
| | | (ii) Write notes on – Mélange yarn, Metal yarn and Elastomeric yarn. | 7 |
| | | (OR) | |
| | B | (i) Draw the flow chart of spun polyester sewing thread manufacturing. | 8 |
| | | (ii) Explain briefly about the properties of embroidery threads. | 7 |

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)
N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4067320

Semester: III Semester

Subject Title: BASIC KNITTING TECHNOLOGY

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	
4067320 Basic Knitting Technology	5	80	25	100*	100	3 Hrs

* Examinations will be conducted for 100 marks and will be reduced to 75 marks.

Topics and Allocation of Hours:

S. No	Topics	Hours
I	Introduction to Knitting	15
II	Weft Knitted Structures and their derivatives	15
III	Weft Knitted Fabric Defects and Knitting Machine Maintenance	15
IV	Special Structures and Circular Jacquard Knitting	14
V	Computer Controlled Flat Knitting Machine	14
	Test & Revision	7
Total		80

RATIONALE:

This subject helps the students to know the technical know-how of knitting procedures and principles, knitting machine elements, their functions and working principle and various settings of Single Jersey and Double Jersey knitting machines. This subject helps the students to know the knitted fabric structure designing principles and draw the notations for various structures and the implications of stitch combinations to alter the structure. This subject also helps the students to know the various common defects that occur in weft knitted fabrics and the methods to rectify them. The subject helps in learning the working principles of Computer controlled flat knitting machines.

OBJECTIVES:

At the end of the study of III Semester the student will be able to

- To understand the basic terminologies of knitting and basic stitch types.
- To learn the yarn quality requirements for weft knitted fabrics.
- To learn different knitting elements.
- To understand the functions of various parts of circular knitting machine.
- To understand the relationship between yarn count and machine gauge.
- To study the importance of timing and various machine settings.
- To know basic weft knitted structures and their derivatives.
- To learn the stitch notation / loop diagram of basic weft knitted structures.
- To understand the various knitted fabric defects and their causes and remedies.
- To learn the maintenance of knitting machine.
- To understand the cam arrangement, needle selection and carriage drive of computer controlled flat knitting machine.
- To learn the programming concepts for producing a desired fabric structure in the computerized flat knitting machine.

4067320 BASIC KNITTING TECHNOLOGY

DETAILED SYLLABUS

Contents: Theory

Unit	Name of the Topics	Hours
I	INTRODUCTION TO KNITTING Fundamentals of stitch formation - Basic Stitch Types - Knit, Tuck and Float or Miss - Knitting Elements - Major and minor elements (listing only) - Knitting Needles - Types - Latch needle, Compound needle, Bearded needle (Sketch and Description of parts) - Knitting action of - Latch, Compound and Bearded needles -Sinkers and its functions - Circular Knitting Machine - Cylinder Assembly – Description. Cam Box- Important functions of various cams in a cam box assembly- - Feeder - Types - Positive feeder – Importance – Working Principle, Lycra Feeder - - Passage of yarn through – Single Jersey machine, and Double Jersey Rib/Interlock machine - - Knitting action of – Latch, Bearded and Compound Needles - Cam Box- Important functions of various cams in a cam box assembly	15
II	WEFT KNITTED STRUCTURES AND THEIR DERIVATIVES Single jersey Structures – Ornamentation – Derivatives – Double Lacoste Satin, Honey comb, Cross miss, Cross tuck, Weft lock knit, Accordion fabrics, plated Single jersey - Double jersey structures and their derivatives- Rib structure, Swiss double pique, French double pique, Milano rib, Rib ripple Interlock structures derivatives – Eight lock, Single pique, Texi pique, Pin tuck, Ponti-de-Roma, Bourrelet , Ottoman rib Purl structure-Basket purl and cross purl	15
III	WEFT KNITTED FABRIC DEFECTS AND KNITTING MACHINE MAINTENANCE Fabric Checking – Visual Inspection - Frequent faults in circular knitting machine – Prerequisites on the circular knitting machine for faultless knitwear –Setting of the knitting machine - Single Jersey fabric defects – causes and their elimination – cloth fall out snags – tuck and double stitches – Bunching up – horizontal stripe – vertical stripe – soil stripes - Defects of Double Jersey fabric (Rib & Interlock) -Vertical lines, Holes and	15

	cuttings, Drop stitches, Unwanted tuck stitches, Loading up and Bursting – Maintenance of weft knitting machine – Objectives – Types of maintenance and Brief Study of each maintenance methods. Maintenance Schedule for Single Jersey and Double Jersey Knitting Machine - Cleaning and Lubrication - Maintenance of needles, stop motions, Yarn carriers - Importance of stitch cam setting - Starfish Project – Brief Study.	
IV	SPECIAL STRUCTURES AND CIRCULAR JACQUARD KNITTING Special structures – Two thread fleece, Three thread Fleece, Double fleece, Three thread fleece, Plush (Terry) - Jacquard Knitting - Introduction - Classification of jacquard weft knitting machine - Design Area and Depth – Selector Arrangement - Needle Selection mechanism of Jacquard machine – Pattern wheel, Pattern drum - Multi step drum and Peg drum type- Electronic needle selection – Jacquard structures – Single Jersey Two color and three color jacquard –Rib Two color and three color jacquard with horizontal striper backing- vertical striper backing –Bird's Eye backing - Single relief and double relief jacquard.	14
V	COMPUTER CONTROLLED FLAT KNITTING MACHINE Yarn Feeding arrangement – Yarn carrier selection and operation – Structure of Needle beds – Racking mechanism – Cam arrangement and Needle selection (Detailed study) – Carriage Drive and control (Detailed study)- Quality cams – Fabric Quality control (Detailed study) – Fabric Take Down Mechanism – Programming concepts for setting a design in a computerized flat knitting machine (Detailed study)	14

Text Book:

Title	Author	Publisher	Year
Knitting Technology	D.B.Ajgoankar	Universal Publishing Corporation	1998
Circular Knitting	Iyer / Mammal	Bernberg Meisenbach	1995
Knitting Technology	David Spencer	Woodhead Publishing Ltd	2005
KNITTING – Fundamentals, Machines, Structures and Developments	Dr.N.Anbumani	New Age International Publishers	2007
Flat Knitting Technology	Dr.Samuel Raz	Universal Maschinen fabric	1993

Reference:

Title	Author	Publisher	Year
Flat Knitting – The New Generation	Dr.Samuel Raz	Meisenbach	1991
Knitting Encyclopaedia	Charles Reichman	NKOA	1972
Knitted Fabric Technology	Charles Reichman	NKOA	1974
Flat Knitting Machines	Research Centre of the Knitting Industry - France	ITF Maille	1989
Workshop on Indian Knitting Industry	Proceedings	PSG College of Technology	1992

Board Examination-Question Paper Pattern
for Basic Knitting Technology

Note: Clarkes Table and Programmable Calculators are not permitted.

Relevant data should be provided in the question paper for solving the problems if any required.

Time: 3 Hrs.

Max.Marks:100

PART – A Five questions will be asked covering all units. All questions are to be answered. Each question carries 1 mark.

PART- B Fifteen questions will be asked covering all the units. Three questions from each unit. Answer any ten questions. Each question carries 2 marks.

PART-C Five questions will be asked Either or type. One question from every unit. Answer either A or B. Each question carries 15 marks. A and B have Subdivisions. (7 + 8)

The questions are to be numbered from 1 to 25. All the units are to be covered with equal weight age.

PART A Definitions and Statements. Question Number 1 to 5	5 X 1 = 5 Marks
PART B Short answer type questions Question Number 6 to 20	10 X 2 = 20 Marks
PART C Descriptive answer type questions (Either A or B) Question number 21 to 25	5 X15 = 75 Marks
TOTAL	100 Marks *

Note: Board Examinations will be conducted for 100 Marks and converted to 75 Marks.

MODEL QUESTION PAPER

Subject: Basic Weft Knitting Technology

Time: 3 Hrs.

Max. Marks: 100

PART A

Answer all the Questions

(5 x 1 = 5)

1. Draw the tuck stitch.
2. Name any two Single Jersey derivative structure.
3. List any two Single Jersey fabric defects.
4. What do you mean by Jacquard Knitting?
5. Define the term racking.

PART B

Answer any 10 Questions

(10x 2 = 20)

6. Sketch the Latch needle and list its parts.
7. What is the use of the lycra feeder?
8. List the major knitting elements.
9. Draw 1x1 Rib structure.
10. Draw any one accordion structure.
11. Draw the basket purl.
12. List the Single Jersey fabric defects.
13. What is the use of the stitch cam?
14. List the causes for the double tuck defect.
15. Draw Single Jersey two color Jacquard.
16. List the disadvantages of the pattern wheel?
17. What do you mean by relief Jacquard?
18. What is the use of the Quality Cams?
19. What you mean by electronic needle selection?
20. What are the different racking positions available in computer controlled flat knitting machine?

PART C

Answer all the Question, Choosing either A or B from each question (5 x 15 = 75)

21	A	(i)	Explain the knitting action of a latch needle.	8
		(ii)	Explain the knitting action of a compound needle.	7
	(OR)			
	B	(i)	Explain in detail the cam box functions.	8
		(ii)	Draw the passage of material through a Single Jersey Machine.	7
22	A	(i)	Write notes on ornamentation of Single Jersey fabrics.	8
		(ii)	Draw any two Single Jersey derivative structures and give the cam arrangements.	7
	(OR)			
	B	(i)	Draw any two Rib derivative structures and give the cam arrangements.	8
		(ii)	Draw any two Interlock derivative structures and give the cam arrangements.	7
23	A	(i)	Write notes on Maintenance of weft knitting machines.	8
		(ii)	Write note on Starfish project.	7
	(OR)			
	B	(i)	List the prerequisites for the faultless knitwear.	8
		(ii)	List any four Double jersey fabric defects and give the causes.	7
24	A	(i)	With a neat sketch explain the Pattern wheel Jacquard mechanism.	8
		(ii)	Draw the Rib two color jacquard with different backing effects.	7
	(OR)			
	B	(i)	Explain the electronic jacquard mechanism.	8
		(ii)	Explain the selector arrangement in Jacquard Mechanism.	7
25	A	(i)	With a neat sketch explain the yarn feeding arrangements of a Computer controlled flat knitting machine.	8
		(ii)	Write notes on fabric quality control mechanism.	7
	(OR)			
	B	(i)	Explain the programming concepts of the computer controlled flat knitting machine.	8
		(ii)	Explain briefly about the fabric take down mechanism.	7

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)
N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4066330

Semester: III Semester

Subject Title: APPAREL DESIGNING

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	
4066330 Apparel Designing	5	80	25	100*	100	3 Hrs

* Examinations will be conducted for 100 marks and will be reduced to 75 marks.

Topics and Allocation of Hours:

S. No	Topics	Hours
I	Basics of Apparel Design	15
II	Pattern Layout	15
III	Seam, Seam finishes & Plackets	15
IV	Yoke, Collars & Sleeves	14
V	Cuffs, Pockets & Fullness	14
	Test & Revision	7
Total		80

RATIONALE:

Style of every garment needs various design techniques for improvising the garment. The garment construction includes various types of stitches, seams, collars, cuffs, plackets, pockets, neckline finishes and fullness effect. Each and every item is used depending on the style, the personality of the wearer, the occasions and the aesthetics. This subject enriches the knowledge on the design techniques of the various parts of the garment so as to make it perfect and beautiful.

OBJECTIVES:

At the end of the study of III Semester the student will be able to

- Understand the importance of Human Anatomy.
- Understand the types of figures.
- Learn the basics of Measurements and Garment construction.
- Learn different types of layout, Marker and Marker efficiency.
- Learn different types of Seams.
- Understand the types of Plackets.
- Understand the types of Yokes.
- Study the selection of Collars and Neckline finishes.
- Know about Sleeves and its types.
- Learn different types of Pockets.
- Understand the types of Darts, Pleats and Tucks.
- Understand the types of Gathers Shirrs, Flares and Frills.

4066330 APPAREL DESIGNING

DETAILED SYLLABUS

Contents: Theory

Unit	Name of the Topics	Hours
I	BASICS OF APPAREL DESIGN Eight head theory and its importance in apparel manufacturing – Relative length and girth measurement - Garment Construction Tools & Equipment – Measuring, Marking, Cutting, Pressing and General tools. Measurements – Importance - Procedure for taking measurements and Various body measurements for Kid's, Lady's & Gent's. Pattern – Definition and importance - Types - merits and demerits of patterns. Types of Figure – Proportionate, Corpulent figure, Semi corpulent figure, Stooping figure – Erect figure. Common irregularities of male – Slope shoulder – Square shoulder - Bow leg – Knock knee.	15
II	PATTERN LAYOUT Fabric grains – types of grain and its importance. Principles in pattern making – Pattern layout and its importance – Principles in pattern layout – Different types fabric folding for layout – Special types of Layout – Procedure for economical layout- Insufficient fabric layout – Marshdan layout for bulk production and its importance –Type of Lays – Lay length and marker – Marker efficacy – Lay efficiency.	15
III	SEAMS, SEAM FINISHES & PLACKETS Seams – Definition- Different types of seams- Plain, French, Welt seam, Top stitch seam. Seam finishes- Piped, crossed, Bound and Pinked. Hems – definition – Types of hems – Slip, Catch stitch, Invisible, Herring bone. Plackets & Openings – definition- characteristics of good plackets – One piece, Two pieces, Tailored and Zipper plackets.	15
IV	YOKE, COLLARS & SLEEVES Yoke – definition- selection of yoke design. Different types of yokes (Partial, Midriff, and Yoke with fullness). Collars – Types of collar like Shirt, Stand, Ruffle, Roll, Shawl, Peter pan, Square. Neck line types and Neck line finishes. Sleeves – types of sleeves such as Plain, Puff, Bell, Circular, Leg-O-mutton, Magyar, and Raglan sleeves.	14

V	CUFFS, POCKETS & FULLNESS Types of cuffs - Round, Gauntlet and pointed. Pockets - Different types of pockets such as Patch, Welt, front Hip and Set in pocket. Fullness – definition - Single and double pointed darts - Relocation of dart by slash and spread method - Types of tucks like pin tuck, cross tuck, piped tuck, shell tuck and its importance - Types of pleats like Knife pleat, Box pleat, Kick pleat, Cartridge pleat, Pinch pleat and its importance - Gathers and Frills.	14
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Text Book:

Title	Author	Publisher	Year
Practical clothing construction Part I & II	Mary Mathews	Bhattarans Reprographics (P) Ltd., Chennai.	1974
The Art of Sewing	Anna Jacob Thomas	UBS Publisher, Delhi	2001
Practical dress Design	Enwin, M.D.	The MacMillan Comp., New York.	1982

Reference:

Title	Author	Publisher	Year
Complete guide to sewing	Reader's digest sewing guide	The reader's digest Association, Inc. New York.	1976

Board Examination-Question Paper Pattern
for Apparel Designing subject

Note: Clarkes Table and Programmable Calculators are not permitted.

Relevant data should be provided in the question paper for solving the problems if any required.

Time: 3 Hrs.

Max.Marks:100

PART – A Five questions will be asked covering all units. All questions are to be answered. Each question carries 1 mark.

PART- B Fifteen questions will be asked covering all the units. Three questions from each unit. Answer any ten questions. Each question carries 2 marks.

PART-C Five questions will be asked Either or type. One question from every unit. Answer either A or B. Each question carries 15 marks. A and B have Subdivisions. (7 + 8)

The questions are to be numbered from 1 to 25. All the units are to be covered with equal weight age.

PART A Definitions and Statements. Question Number 1 to 5	5 X 1 = 5 Marks
PART B Short answer type questions Question Number 6 to 20	10 X 2 = 20 Marks
PART C Descriptive answer type questions (Either A or B) Question number 21 to 25	5 X15 = 75 Marks
TOTAL	100 Marks *

Note: Board Examinations will be conducted for 100 Marks and converted to 75 Marks.

MODEL QUESTION PAPER

Subject: Apparel Designing

Time: 3 Hrs.

Max. Marks: 100

PART A

Answer all the Questions

(5 x 1 = 5)

1. Define - Pattern.
2. What is marker?
3. Define – seam.
4. Define – Yoke.
5. What is frill?

PART B

Answer any 10 Questions

(10x 2 = 20)

6. What is the importance of eight head theory?
7. What are the merits of pattern?
8. What you mean by corpulent figure?
9. What is grain?
10. Mention the types of lay.
11. What is layout?
12. What you mean by seam finish?
13. What is hem?
14. What is the purpose of placket?
15. What is shirt collar?
16. What is leg-o-mutton sleeve?
17. Write any four types of Neck shape.
18. What is gauntlet?
19. What you mean by fullness?
20. What is the purpose of dart?

PART C

Answer all the Question, Choosing either A or B from each question (5 x 15 = 75)

- 21 A (i) Explain the relative length and girth measured using 8 head theory. 8
(ii) Explain in detail about the cutting and measuring tools. 7
(OR)
B (i) Explain in detail about the types of pattern. 8
(ii) Explain the procedure to take the body measurement. 7
- 22 A (i) Explain the principles of pattern. 8
(ii) Explain the principles of Marshdan layout. 7
(OR)
B (i) Explain the principles of pattern layout. 8
(ii) Explain the ways of economical layout. 7
- 23 A (i) Explain the construction of different seam. 8
(ii) Explain the construction of one piece placket. 7
(OR)
B (i) Explain the construction of different seam finishes. 8
(ii) Explain the characters of good placket. 7
- 24 A (i) Explain the construction of partial and midriff yoke. 8
(ii) Explain the construction of puff sleeve and plain sleeve. 7
(OR)
B (i) Explain the construction of shawl and peter-pan collar. 8
(ii) Explain the construction of bound neck finishing. 7
- 25 A (i) Explain about the types of pockets. 8
(ii) Explain the relocation dart by slash method. 7
(OR)
B (i) Explain the types of tucks. 8
(ii) Explain the types of pleats. 7

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)
N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4067340

Semester: III Semester

Subject Title: KNIT STRUCTURES - I 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	
4067340 Knit Structures - I Practical	5	80	25	100*	100	3 Hrs

* Examinations will be conducted for 100 marks and will be reduced to 75 marks.

RATIONALE:

This practical is helpful to analyze the weft knitted fabric structures and to calculate the production of Single Jersey fabric and double jersey fabric structures. To analyze the knitted collar designs

GUIDELINES:

- All the twelve 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 student should be provided with a separate drawing table 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 three students while examining a batch of 30 students during Board Examinations.

ALLOCATION OF MARKS

Experiment	60 marks
Write up	30 marks
Viva	10 marks
 Total	 100 Marks

OBJECTIVES:

To analyze the given Single Jersey Knitted Fabric, Double Jersey Knitted fabrics their derivatives and estimate the following:

CPI / WPI 2) Stitch length 3) GSM 4) Crimp% 6) Count

To give the cam settings for Single Jersey four track structures

LIST OF EQUIPMENT

Drawing table - 30 No

Materials required :

GSM Cutter and GSM Weighing scale

Counting Glass - 30 No / experiment / batch of 30 students

LIST OF EXPERIEMENTS

1. Analyze the Single Jersey Plain knitted fabric and find a) CPI/WPI b) Stitch length c) GSM d) Crimp % e) Design Repeat f) Count of yarn.
2. Analyze the Single Jersey Derivative Fabric Lacoste and find a) CPI/WPI b) Stitch length c) GSM d) Crimp % e) Design Repeat f) Count of yarn.
3. Analyze the Single Jersey Derivative Fabric Single Pique and find r a) CPI/WPI b) Stitch length c) GSM d) Crimp % e) Design Repeat f) Count of yarn.
4. Analyze the Double Jersey 1x1 Rib Fabric Single Pique and find a) CPI/WPI b) Stitch length c) GSM d) Crimp % e) Design Repeat f) Count of yarn.
5. Analyze the Rib derivative Fabric Full Cardigan and find a) CPI/WPI b) Stitch length c) GSM d) Crimp % e) Design Repeat f) Count of yarn.
6. Analyze the Plain Interlock Fabric and find a) CPI/WPI b) Stitch length c) GSM d) Crimp % e) Design Repeat f) Count of yarn.
7. Analyze any one fleece fabric and find a) CPI/WPI b) Stitch length c) GSM d) Crimp % e) Design Repeat f) Count of yarn.
8. Analyze any one four Single Jersey Four Track structures and find a) CPI/WPI b) Stitch length c) GSM d) Crimp % e) Design Repeat f) Count of yarn.
9. Analyze the Terry structures and find a) CPI/WPI b) Stitch length c) GSM d) Crimp % e) Design Repeat f) Count of yarn.
10. Analyze the given collar structures and draw the cam arrangement for producing it
11. Calculate the production of a Single Jersey Weft Knitting Machine with the given particulars
12. Calculate the production of a Rib Weft Knitting Machine with the given particulars

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)
N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4067350

Semester: III Semester

Subject Title: EMBROIDERY 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	
4067350 Embroidery Practical	4	64	25	100*	100	3 Hrs

* Examinations will be conducted for 100 marks and will be reduced to 75 marks.

RATIONALE:

Value addition to garment and made-ups are achieved through enriching the products with decorative items. Embroidery is one of the decorative techniques and is made either through Hand or Machine embroidery. Now a day's both domestic and international market demand is towards embroidered textile and garment materials.

This practical subject provides hands on experience on the types of embroidery techniques, the stitches and the type of tools and equipment used in garment industry.

GUIDELINES:

- All the twelve 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 sewing machines with embroidery frame and threads 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	60 marks
Write up	30 marks
Viva	10 marks
Total	100 marks

OBJECTIVES OF THE EXPERIMENTS:

HAND EMBROIDERY

- To practice Running & Double running stitches.
- To practice Stem & Back stitches.
- To practice Chain Stitch & three of its variations.
- To practice Lazy Daisy Stitch.
- To practice Button hole Stitch.
- To practice Blanket stitch.
- To practice Fly Stitch.
- To practice Fish-Bone & herring bone stitches.
- To practice Feather.
- To practice Knot.
- To practice Satin Stitch
- To practice Zardoshi work.
- To practice Stone work.

LIST OF EQUIPMENT

1. Hand / Machine embroidery tools & machineries:-

- Embroidery frame - 30 No.
- Hand needles - 30 No.
- Tracing wheel - 30 No.
- Thimbles - 30 No.

2. Materials required:

- 2 meter fabric/ expt/ batch of 30 students
- 1 meter Non-woven or Sponge sheet / experiment / batch of 30 students
- 10 sheets of tracing paper / experiment /batch of 30 students
- Embroidery threads- 30skeins of assorted colors / experiment / batch of 30 students.

LIST OF EXPERIMENTS

1. Prepare Embroidery Design using Running Stitch & Double running stitch.
2. Prepare Embroidery Design using Stem Stitch & Back stitch.
3. Prepare Embroidery Design using Stem Back stitch
4. Prepare Embroidery Design using Chain Stitch.
5. Prepare Embroidery Design using Lazy Daisy Stitch.
6. Prepare Embroidery Design using Button hole Stitch.
7. Prepare Embroidery Design using Blanket Stitch.
8. Prepare Embroidery Design using Fly Stitch or Feather stitch.
9. Prepare Embroidery Design using Fish-Bone or Herring bone.
- 10.Prepare Embroidery Design using Knot stitch.
- 11.Prepare Embroidery Design using Satin Stitch.
- 12.Prepare Embroidery Design using Zardoshi and stone work.

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)
N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4067360

Semester: III Semester

Subject Title: APPAREL DESIGNING 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	
4067360 Apparel designing Practical	4	64	25	100*	100	3 Hrs

* Examinations will be conducted for 100 marks and will be reduced to 75 marks.

RATIONALE:

Style of every garment needs various design techniques for the parts of the garment. The garment construction includes various types of stitches, seams, collars, cuffs, plackets, pockets, neckline finishes and fullness effect. This practical subject provides hands on experience on the preparation of stitches, seams, collars, cuffs, plackets, pockets, neckline finishes and fullness effect that are major items of garment construction.

GUIDELINES:

- All the twelve 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 sewing machines and required attachments 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	60 marks
Write up	30 marks
Viva	10 marks
Total	100 Marks

OBJECTIVES OF THE EXPERIMENTS:

Seams, Seam finishes & Hems

- To Construct Seams – Plain, French, Welt seam- Top stitch seam,
- To Construct seam finishes- Piped, crossed, Bound, Pinked
- To Construct Hems– Slip, Catch stitch, Invisible, Herring bone.

Plackets & Pockets

- To Construct Plackets– One piece, two piece, Tailored, Zipper.
- To Construct Pockets– Patch, Welt, Bound, front Hip and Pocket in seam pockets.

Sleeves

- To prepare patterns and Construct Plain sleeve.
- To prepare patterns and Construct Puff sleeve
- To prepare patterns and Construct Bell sleeve.

Collars

- To prepare patterns and Construct Shirt collar.
- To prepare patterns and Construct Peter pan collar.
- To prepare patterns and Construct Shawl collar.

Darts, Pleats and Tucks

- To Construct different types of Darts.
- To Construct Knife, Box, Cartridge and Pinch pleats.
- To Construct Tucks– pin tuck, cross tuck, piped tuck, shell tuck.

Frills, Gathers & Neck line finishes

- To construct different types of Frills and Gathers.

- To construct Neck Line Finishes– facings and bindings.

LIST OF EQUIPMENT

Equipment required:

- Measuring tools
- Pattern making tools
- Construction tools
- General tools
- Sewing machines: - Lock stitch - 15 m/cs.
Over lock - 1 m/c.
Flat lock - 1 m/c
Buttonhole - 1 m/c
Button stitch - 1 m/c

Materials required:

- 3- 5 meters of fabric/ experiment / batch of 30 students.
- Sewing threads: - white and assorted – 30 nos.

LIST OF EXPERIMENTS

1. Construct different types of Seams – any three.
2. Construct different types of Hems– any three.
3. Construct different types of Plackets– any three.
4. Construct different types of Pockets– any three.
5. Prepare patterns and Construct any two sleeves.
6. Prepare patterns and Construct Shirt collar.
7. Prepare patterns and Construct Peter pan collar.
8. Construct different types of Darts.
9. Construct Knife, Box, Cartridge and Pinch pleats.
10. Construct different types of Tucks– any three.
11. Construct different types of Frills and Gathers.
12. Construct different types of Neck Line Finishes– any two

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)
N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4067370

Semester: III Semester

Subject Title: WOVEN GARMENT PATTERN DRAFTING 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	
4067370 Woven Garment Pattern Drafting Practical	4	64	25	100*	100	3 Hrs

*** Examinations will be conducted for 100 marks and will be reduced to 75 marks.**

RATIONALE:

Pattern drafting is the nerve centre of garment making. Every garment parts are draft to its size for lateral assembling into a garment. This procedure helps to make perfect garment to various sizes. Any alteration is also made within the pattern. The patterns can also be stored for ever and repeated orders are carried out at ease. From the patterns layout is made simple and better marker efficiency is achieved for minimum consumption of fabrics.

GUIDELINES:

- All the twelve experiments given in the list of experiments should be completed and given for the end semester practical examination.
- 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 OF THE EXPERIMENTS:

Men's wear

- To prepare the paper pattern and calculate fabric consumption by using layout method for the Garment – Men's half sleeve and full sleeve shirt
- To prepare the paper pattern and calculate fabric consumption by using layout method for the Garment – Men's Trouser

Women's Wear

- To prepare the paper pattern and calculate fabric consumption by using layout method for the Garment -- A line frock
- To prepare the paper pattern and calculate fabric consumption by using layout method for the Garment -Yoke Frock
- To prepare the paper pattern and calculate fabric consumption by using layout method for the Garment -Umbrella Frock
- To prepare the paper pattern for the Garment – Salwar

Children's wear

- To prepare the paper pattern for the Garment – Boys shorts
- To prepare the paper pattern for the Garment – Pilch Knicker
- To prepare the paper pattern for the Garment – Zabala
- To prepare the paper pattern for the Garment – Bllomner
- To prepare the paper pattern for the Garment – Pinna fore

Equipment required:

- Pattern table - 8'x4' table - 4 nos.
- Sewing Machines – 6 Nos

Materials required:

- Pattern paper - 30 no / experiment / batch of 30 students
- Measuring, drafting & cutting tools - 30/ batch of 30 students

LIST OF EXPERIEMENTS

1. Prepare the paper pattern and calculate fabric consumption for the Garment – Plinch nicker.
2. Prepare the paper pattern and calculate fabric consumption for the Garment – Zabla.
3. Prepare the paper pattern and calculate fabric consumption for the Garment – Bloomer.
4. Prepare the paper pattern and calculate fabric consumption for the Garment – A Line frock.
5. Prepare the paper pattern and calculate fabric consumption for the Garment – Yoke Frock.
6. Prepare the paper pattern for the Garment – Umbrella Frock.
7. Prepare the paper pattern for the Garment – Pinna fore.
8. Prepare the paper pattern for the Garment – Men's Half Sleeve Shirt
9. Prepare the paper pattern for the Garment – Men's Full Sleeve Shirt
10. Prepare the paper pattern for the Garment – Men's Trouser
11. Prepare the paper pattern for the Garment – Boys Shorts.
12. Prepare the paper pattern for the Garment – Salwar

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)
N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4066410

Semester: IV Semester

Subject Title: APPAREL PRODUCTION PLANNING AND CONTROL

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	
4066410 Apparel Production Planning and Control	5	80	25	100*	100	3 Hrs

* Examinations will be conducted for 100 marks and will be reduced to 75 marks.

Topics and Allocation of Hours:

S. No	Topics	Hours
I	Introduction	15
II	Apparel Engineering	15
III	Production Planning and Material Management	15
IV	Balance, MRP and Quick response	14
V	Industrial Engineering	14
	Test & Revision	7
Total		80

RATIONALE:

The planning of production process and productivity are the managerial point of view within the industry. Improving the productivity through proper production system increases the profit and performance level of the industry. This subject covers topic like Apparel engineering, Production planning, Materials management and Balancing, MRP and Quick response for better understanding of the subject.

OBJECTIVES:

At the end of the study of IV Semester the student will be able to

- To know about production control and systems.
- Understand the apparel business
- Study the merchandising activity
- Know the basic concepts of Apparel Engineering.
- Know about the production systems in apparel industry.
- Study the fundamentals of production planning.
- Understand the resource management in Apparel Industry
- Obtain knowledge on selection of raw material.
- Know the purchasing procedures
- Understand the basics of production balancing.
- Know about MRP and Sourcing strategies.
- Understand the IE concepts.
- Understand the SAM, Target fixing and Balancing of sewing machines.

4066410 APPAREL PRODUCTION PLANNING AND CONTROL

DETAILED SYLLABUS

Contents: Theory

Unit	Name of the Topic	Hours
I	INTRODUCTION Production Control – Objectives – Relationship with functional areas of Manufacturing – elements of production control system- strategy for implementing a production control system- Business preplan – objectives- Merchandising preplanning- Basic strategy - Financial planning - Cash flow analysis - Production Preplanning.	15
II	APPAREL ENGINEERING Basic concept of Apparel engineering – Flexible Manufacturing – Throughput – Ergonomics - Work flow – Plant layout - Materials handling - Production systems – Progressive Bundle system - Unit Production system- Modular Production system – Individual finishing system – Group system – Combination of Production system – Mass production system – Lean production system – Comparison of lean and mass production system.	15
III	PRODUCTION PLANNING AND MATERIAL MANAGEMENT Production planning- Plant capacity- Committed Capacity- Available capacity- Potential capacity- Required capacity- Individual operation capacity- Excess capacity- Relationship of production Standards to capacity. Basic principles in material management – Principles of purchasing – Purchasing system based on Sales plan. Inventory control – Economic order quantity.	15
IV	BALANCING, MRP AND QUICK RESPONSE Introduction- Basics of Sectionalization – Basics of Balancing – Scheduling of machines- Theoretical Balancing- Balancing of work force- Principles of Manufacturing Resource Planning (MRP)- Critical assessment of MRP- Clothing industry experiences of MRP- Organizational strategies for Quick Response- Standardization affecting the materials supply chain- Buyer / Supplier relationship- Brief study of Sourcing strategies- Just in time suppliers- Overseas sourcing.	14

V	INDUSTRIAL ENGINEERING Role IE in garment production management - Implementation procedure – Time study – Definition, Calculation of basic time, Calculation for standard time, Definition of SAM - SAM calculation through time study - Steps in production line setup – make operation breakdown - Define machine for each operation - Calculate production/Hour and no. of machine and Balancing of machine.	14
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Text Book:

Title	Author	Publisher	Year
Introduction to Clothing Production Management	Chuter AJ	Blackwell Science	1998
Materials Management In Clothing Production	David J Taylor	BSP Professional Books London	2001

Reference:

Title	Author	Publisher	Year
Apparel manufacturing	Ruth E Glock Grace I Kunz	Prentice hall New Jersey	1987
Industrial Engineering in Apparel Production	Ramesh Babu V	Woodhead Publishing India	2012
Industrial Engineering and Management	N V S Raju	Cengage Learning	2013

Board Examination-Question Paper Pattern

Subject: Apparel Production Planning and Control

Note: Clarkes Table and Programmable Calculators are not permitted.

Relevant data should be provided in the question paper for solving the problems if any required.

Time: 3 Hrs.

Max.Marks:100

PART – A Five questions will be asked covering all units. All questions are to be answered. Each question carries 1 mark.

PART- B Fifteen questions will be asked covering all the units. Three questions from each unit. Answer any ten questions. Each question carries 2 marks.

PART-C Five questions will be asked Either or type. One question from every unit. Answer either A or B. Each question carries 15 marks. A and B have Subdivisions. (7 + 8)

The questions are to be numbered from 1 to 25. All the units are to be covered with equal weight age.

PART A Definitions and Statements. Question Number 1 to 5	5 X 1 = 5 Marks
PART B Short answer type questions Question Number 6 to 20	10 X 2 = 20 Marks
PART C Descriptive answer type questions (Either A or B) Question number 21 to 25	5 X15 = 75 Marks
TOTAL	100 Marks *

Note: Board Examinations will be conducted for 100 Marks and converted to 75 Marks.

MODEL QUESTION PAPER

Subject: Apparel Production Planning and Control

Time: 3 Hrs.

Max. Marks: 100

PART A

Answer all the Questions

(5 x 1 = 5)

1. Define – Production control.
2. What is throughput?
3. What is production planning?
4. Why balancing of workforce is required?
5. Define – SAM.

PART B

Answer any 10 Questions

(10x 2 = 20)

6. State the objectives of production control.
7. What is strategy in production control system?
8. What is financial planning?
9. What is the basic concept of apparel engineering?
10. What is flexible manufacturing?
11. Define – Ergonomics.
12. Define – Plant capacity.
13. Define – Potential capacity.
14. What is available capacity?
15. What is theoretical balance?
16. What is critical assessment in MRP?
17. What is overseas sourcing?
18. What is the role of IE in production management?
19. What is time study?
20. What you mean by standard time?

PART C

Answer all the Question, Choosing either A or B from each question (5 x 15 = 75)

- | | | | |
|----|---|---|---|
| 21 | A | (i) Describe in detail about elements of production control system. | 8 |
| | | (ii) Write notes on relationship with functional area of management. | 7 |
| | | (OR) | |
| | B | (i) Explain in detail about production preplanning. | 8 |
| | | (ii) State the objectives of business preplanning. | 7 |
| 22 | A | (i) Describe in detail about the different types of production system. | 8 |
| | | (ii) Write notes on flexible manufacturing. | 7 |
| | | (OR) | |
| | B | (i) Explain detail about the plant layout and material handling. | 8 |
| | | (ii) Write notes on work flow. | 7 |
| 23 | A | (i) Describe in detail about basic principles in material management. | 8 |
| | | (ii) Write notes on individual operation capacity. | 7 |
| | | (OR) | |
| | B | (i) Write notes on economic order quantity. | 8 |
| | | (ii) Write notes on principles of purchasing. | 7 |
| 24 | A | (i) Describe in detail about the principles of MRP. | 8 |
| | | (ii) Write notes on scheduling of machine. | 7 |
| | | (OR) | |
| | B | (i) Explain in detail about organizational strategies for quick response. | 8 |
| | | (ii) Write notes on – Buyer and supplier relationship. | 7 |
| 25 | A | (i) Explain in detail about the steps in production line setup. | 8 |
| | | (ii) Explain briefly about the calculation of basic time. | 7 |
| | | (OR) | |
| | B | (i) Define machine for each operation for making a basic T-Shirt. | 8 |
| | | (ii) Write notes on balancing of sewing machines. | 7 |

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)
N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4067420

Semester: IV Semester

Subject Title: ADVANCED KNITTING TECHNOLOGY

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	
4067420 Advanced Knitting Technology	5	80	25	100*	100	3 Hrs

* Examinations will be conducted for 100 marks and will be reduced to 75 marks.

Topics and Allocation of Hours:

S. No	Topics	Hours
I	Hosiery Machine (Socks Knitting)	15
II	Hosiery Structures (Socks Knitting)	15
III	Warp Knitting Introduction	15
IV	Warp Knit Structures and their representation	14
V	Quality control and production calculation	14
	Test & Revision	7
Total		80

RATIONALE:

This subject helps the students to acquire in-depth knowledge of hosiery articles manufacturing like socks and panty-hose. It helps them to acquire the working principles of various parts of socks knitting machines and the various structures that can be produced on them. It helps the students to acquire the warp knitting machine fundamentals, the warp knitted structure formation, drawing lapping diagram and notation and the yarn selection for warp knitted fabric production, warp preparatory processes. It also helps them to gain the knowledge of knitting production calculation and to know the causes and remedies for warp knitted fabric faults.

OBJECTIVES:

At the end of the study of III Semester the student will be able to

- To learn the knitting cycle of Single cylinder and double cylinder hosiery machine
- To learn the various knitting elements of hosiery machine
- To learn the various types of yarns used for hosiery
- To study the knitting sequence of producing various hosiery structure
- To study the warp knitting fundamentals and the knitting cycle of various warp knitting machines
- To learn the let-off and take-up mechanism of warp knitting machines
- To learn the basic lapping techniques to produce warp knit structures
- To learn the single guide bar, two guide- bar and multi-guide bar structures
- To understand the importance of process and quality control measures in warp knitting
- To estimate the warp knitting machine production

4067420 ADVANCED KNITTING TECHNOLOGY

DETAILED SYLLABUS

Contents: Theory

Unit	Name of the Topic	Hours
I	HOSIERY MACHINE (SOCKS KNITTING) Classification of hosiery products based on length - Hosiery Articles – Brief study of Ladies Panty hose, Men's half hose - Classification of hosiery machine - Single Cylinder machine – Knitting cycle – Knitting Elements - Types of needles – Cylinder - Cam system - Sinkers - Sinker cams - Switch cam - Hosiery machine - Driving mechanism and gearing - Timing and control mechanism (chain and drum)- pattern wheel - Clutch action – Clutch control cams - Pickers - Picker Narrowing - Picker control - Hosiery stitch length control.	15
II	HOSIERY STRUCTURES (SOCKS KNITTING) Scott & William Inturned Welt system – Method of producing mock –rib - Production of heel & toe – various types of heel & toe - Various types of yarns used for Hosiery - Plating – Plain plating – Reverse Plating – Float Plating - Hosiery Patterns – Horizontal stripe, vertical stripe, float stitch, micro-mesh, cross-tuck - Production of Terry Structure - Eyelet patterning – wrap patterning- Intarsia Patterning	15
III	WARP KNITTING INTRODUCTION Warp Knitting - Open lap and Closed lap. Five basic lapping variations - over lapping, under lapping etc. Classification of warp knitting machines - Detailed study of knitting elements of Tricot and Raschel machine. Knitting action of a - Bearded needle Tricot machine - Single needle bar Raschel machine – Comparison of Tricot and Raschel machine - Tricot machine warp let-off system – Negative/Positive yarn let-off system - Take -up system - Mechanical and Electronic beam control	15

IV	WARP KNIT STRUCTURES & THEIR REPRESENTATION Pattern Control Mechanism - Pattern wheel - Pattern chain links (detailed study) – Assembling chain links for simple patterns- Single Bar Structure - Chain or Pillar stitch, Tricot - lap, Atlas lap - Two Guide Bar Tricot Structure - Full tricot, lock-knit, reverse lock-knit, satin, raised loop fabrics, queens cord and sharkskin and blind lap - Multi-Guide Bar Structures – Marquisette, Sand-fly net, Tulle, Power-Net, Fishing Net	14
V	QUALITY CONTROL & PRODUCTION CALCULATION Yarn Preparation for Warp Knitting - Important properties - Winding yarns for warp knitting -WARPING - Direct warping & Indirect warping procedure - Yarn creel arrangement – Magazine creel –Rotary creel (Detailed study) - Quality Control Of Warp Knit Fabrics - Needles and warp knit quality - Guides and warp knit quality - Maintenance of warp knitting machine Common faults in warp knitting and their causes (Dropped stitch, yarn breakage, yarn loading, cutting and whiskering, horizontal and vertical streaks). Calculations - Geometry of warp knitted structures - Theoretical determination of yarn run-in ratio. Production calculation in m ² /hour and kgs /hour from fabric and yarn parameters- Length of yarn required to knit a certain fabric length	14

Title	Author	Publisher	Year
Text books:			
Principles of weaving	R Marks ATC Robinson	The Textile Institute, Manchester, UK	1976
The Motivate Series	Andrea Wynne	MacMillan Education Ltd, London and Basingstoke.	1997
Cotton Yarn Weaving	Kanungo R.N	Textile Association India, Ahmedabad	1980

Weaving machines, Mechanisms & Management	M K Talukdar P K Sriramulu D.B Ajgaonkar	Mahajan Publications Pvt Ltd, Ahmadabad-9	1998
Modern Weaving Technology	J K Arora	Abhisek Publications, Chandigarh- 17	2008
Principles of Knitting	D B Ajgaonkar	Universal Publishing Corporation	1988
Knitting Technology	David J Spencer	Pergamon Press Oxford	1988
Reference books:			
Warp Knitting	D G B Thomas	Merro Pub. Co. ISA Buld. UK	1976
Textile Fibre to Fabric	Bernard P. Corbman	McGraw –Hill Book co.,Singapore.	1983
Yarns and Technical Textiles	K.P.Chellamani	SITRA, Coimbatore	1999
High speed Weaving	Jeyachandran.K	P.S.G.Tech,Coimbatore.	1990

Board Examination-Question Paper Pattern

For Advanced Knitting Technology

Note: Clarkes Table and Programmable Calculators are not permitted.

Relevant data should be provided in the question paper for solving the problems if any required.

Time: 3 Hrs.

Max.Marks:100

PART – A Five questions will be asked covering all units. All questions are to be answered. Each question carries 1 mark.

PART- B Fifteen questions will be asked covering all the units. Three questions from each unit. Answer any ten questions. Each question carries 2 marks.

PART-C Five questions will be asked Either or type. One question from every unit. Answer either A or B. Each question carries 15 marks. A and B have Subdivisions. (7 + 8)

The questions are to be numbered from 1 to 25. All the units are to be covered with equal weight age.

PART A Definitions and Statements. Question Number 1 to 5	5 X 1 = 5 Marks
PART B Short answer type questions Question Number 6 to 20	10 X 2 = 20 Marks
PART C Descriptive answer type questions (Either A or B) Question number 21 to 25	5 X15 = 75 Marks
TOTAL	100 Marks *

Note: Board Examinations will be conducted for 100 Marks and converted to 75 Marks.

MODEL QUESTION PAPER

Subject: Advanced Knitting Technology

Time: 3 Hrs.

Max. Marks: 100

PART A

Answer all the Questions

(5 x 1 = 5)

1. What is the role of the picker?
2. List the types of plating.
3. Define the term open-lap.
4. Name any two two-guide bar structures.
5. List the types of creel arrangements.

PART B

Answer any 10 Questions

(10x 2 = 20)

6. What is the role of the picker?
7. What is the role of the clutch?
8. List the objectives of sinker cams.
9. What do you mean by plating?
10. What do you mean by Intarsia Patterning?
11. What do you mean by Eyelet Patterning?
12. List the five basic lapping variations.
13. What do you mean by let-off mechanism?
14. What do you mean by EBC?
15. List any two disadvantages of the Pattern Wheel Mechanism.
16. Draw the Atlas lap structure.
17. Give the lapping notation of Fish-Net Structure.
18. How does the guide affects the warp knit fabric quality?
19. What do you mean by yarn run-in ratio?
20. List the important yarn properties required for a Warp Knit Structures.

PART C

Answer all the Question, Choosing either A or B from each question (5 x 15 = 75)

- 21 A (i) Explain the knitting cycle of a Single Cylinder hosiery machine. 8
(ii) Give the classification of Hosiery Machines. 7
(OR)
B (i) Explain the gearing and driving mechanism of a hosiery machine. 8
(ii) Explain the timing and control mechanism. 7
- 22 A (i) Explain in detail the heel and toe formation. 8
(ii) Draw any four hosiery structures. 7
(OR)
B (i) Explain in detail the method of producing mock-rib 8
(ii) Write notes on wrap and terry socks production. 7
- 23 A (i) Explain the knitting cycle of bearded needle tricot machine. 8
(ii) Give the comparison of tricot and raschel machine. 7
(OR)
B (i) With a neat sketch explain any one let-off system. 8
(ii) Give the classification of the warp knitting machine. 7
- 24 A (i) Explain the assembling of chain links for simple patterns. 8
(ii) Draw any two two-guide bar structures with lapping notation and lapping diagram. 7
(OR)
B (i) Draw the lapping notation and diagram of Tulle and Power-net 8
(ii) Draw and explain the pattern wheel mechanism. 7
- 25 A (i) Explain in detail the maintenance of warp knitting machine. 8
(ii) List various warp knit fabric defects and give the causes for them. 7
(OR)
B (i) Draw and explain the creel arrangements of the warp knitting. 8
(ii) Write notes on quality control of warp knit fabrics. 7

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4066430

Semester: IV Semester

Subject Title: CLOTHING MACHINERY AND EQUIPMENTS

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	
4066430 Clothing Machinery and Equipment	5	80	25	100*	100	3 Hrs

* Examinations will be conducted for 100 marks and will be reduced to 75 marks.

Topics and Allocation of Hours:

S. No	Topics	Hours
I	Basic Mechanical Engineering	15
II	Basic Sewing machines	15
III	Special machines	15
IV	Attachments and cutting machines	14
V	Fusing machines and Maintenance	14
	Test & Revision	7
Total		80

RATIONALE:

Machineries are the important section of garment construction. The quality of the product is determined to certain extent by the construction quality. Even the right kind of sewing machines and the attachments play a vital role in deciding the quality of the end product. To achieve the required quality, it is imperative to understand the type of sewing machines, its parts and functions, the maintenance part, the attachments along with various special machines that generally used in garment manufacturing.

OBJECTIVES:

At the end of the study of IV Semester the student will be able to

- Understand the functions of belts, gears, cams, clutch and bearings.
- Learn the various system of lubrication.
- Understand the basics of dc motor.
- Understand the functions of lock stitch, over lock and zig zag sewing machines.
- Learn the various defects in sewing.
- Learn about the Threading procedure of special machines.
- Understand the functions of special sewing machines.
- Learn the functions of guides and attachments.
- Understand the functions of finishing machines.
- Learn the maintenance of sewing and other machines.

4066430 CLOTHING MACHINERY AND EQUIPMENTS

DETAILED SYLLABUS

Content: Theory

Unit	Name of the Topic	Hours
I	BASIC MECHANICAL ENGINEERING Transmission of Motion and Power: Types of belt drives and its advantages. Gear drive – Classification of Gear drives and its advantages. (Spur, Bevel, Helical and Worm Gear) Cams – definition – Types of Cams. Clutch – Functions of clutch – Principle and working of single plate friction Clutch with diagram. Brakes – Principle & working of Hydraulic Brake with diagram. Bearings – Type and importance. Lubrications – Purpose – types such as Liquid, Semi-liquid & Solid. Lubrication Systems – Gravity circulation System, Pressure circulating systems with diagram.	15
II	BASIC SEWING MACHINES Single needle Lock stitch machines - Parts and Functions - Timed sequence in stitch formation in single needle lock stitch machine - Needle bar mechanism with diagram - Brief study of Shuttle and Hook mechanism with diagram - Study of thread tension variation and its adjustment in needle and Bobbin - Different types of needles and Needle Number - Selection of needle and thread. Different types of sewing machine bed and its features.	15
III	SPECIAL MACHINES Merits of Computerized sewing machine - Different types of Feed mechanism in sewing machine. Threading Procedures with diagram - 3 threads over lock - Flat lock Machine (5 Thread). Brief Study of Button hole & Button Stitch Machines – Elastic tape Stitch Machine – Collar turner - Feed-Off-Arm machine – Chain Stitch Machine – Bar Tacking machine – Blind stitch Machine – Zig Zag machines – Computerized embroidery machine – Thread sucking machine - needle detector.	15

IV	ATTACHMENTS AND CUTTING MACHINE Brief study of Hemmer Foot, Cording Foot, Piping Foot, Quilter & Guide Foot with diagram. Brief study of special attachments and uses. Brief study of Folders, Binders & Guides. Objectives of Spreading – Requirements of Spreading table – Spreading types - Brief study of automatic spreading machine. Types of Cutting machines – Straight Knife, Band Knife, Round knife, Die Cutting and Laser Cutting. Brief study about Computerized cutting machine.	14
V	FINISHING MACHINES & MAINTENANCE Fusing – Elements of fusing - Types of Fusing machine and working of continuous fusing machine with diagram. Garment finishing – Process flow chart of garment finishing - Principles of Pressing – objective of pressing – Equipments for pressing - Spotting process – Universal finishers – Shirt finishers - form finishers - tunnel finishers - Garment folding machine. Maintenance of Machines – Maintenance Schedule in Garment Units.	14

Text Book:

Title	Author	Publisher	Year
Mechanical Technology	V Sivarajan	V K Pub. Bangalore	2002
Theory of Machines	S S Rattan	Tata Mc GRAW – Hill Pub. Co .Ltd. New Delhi-110033	1996
Text book of Electrical Technology	B L Theraja A K Theraja	S. Chand & Co. New Delhi	2002
Essentials of Electricity	K C Graham	D B Tarapore wala Mumbai	
Technology of Clothing Manufacture	Carr & Lathem	Blackwell Sci.Pub New 77ork	2014
Introduction to Clothing Manufacture	Gerry Cooklin	Blackwell Sci.Pub New 77ork	2015

Reference:

Title	Author	Publisher	Year
Theory of Machines	P L Ballaney	Kanna Pub., Delhi.	1980
Complete Guide to Sewing		Readers Digest.	1999
The complete book of sewing	Dorling Kindersley	London	1999
A Text book of Machine Design	R S Khurmi J K Gupta	Eurasia Pub., New Delhi	1998

Board Examination-Question Paper Pattern

For Clothing Machinery and Equipment

Note: Clarkes Table and Programmable Calculators are not permitted.

Relevant data should be provided in the question paper for solving the problems if any required.

Time: 3 Hrs.

Max.Marks:100

PART – A Five questions will be asked covering all units. All questions are to be answered. Each question carries 1 mark.

PART- B Fifteen questions will be asked covering all the units. Three questions from each unit. Answer any ten questions. Each question carries 2 marks.

PART-C Five questions will be asked Either or type. One question from every unit. Answer either A or B. Each question carries 15 marks. A and B have Subdivisions. (7 + 8)

The questions are to be numbered from 1 to 25. All the units are to be covered with equal weight age.

PART A Definitions and Statements. Question Number 1 to 5	5 X 1 = 5 Marks
PART B Short answer type questions Question Number 6 to 20	10 X 2 = 20 Marks
PART C Descriptive answer type questions (Either A or B) Question number 21 to 25	5 X15 = 75 Marks
TOTAL	100 Marks *

Note: Board Examinations will be conducted for 100 Marks and converted to 75 Marks.

MODEL QUESTION PAPER

Subject: Clothing Machinery and Equipments

Time: 3 Hrs.

Max. Marks: 100

PART A

Answer all the Questions

(5 x 1 = 5)

1. What is power transmission?
2. What is the purpose of stitch regulator?
3. What is the purpose of over-lock machine?
4. What is merit of laser cutting machine?
5. What are elements of fusing?

PART B

Answer any 10 Questions

(10x 2 = 20)

6. What are the types of gears?
7. What is the purpose of lubricant?
8. What is disadvantage of belt drive?
9. What you mean needle numbering?
10. How will you correct the bobbin thread tension?
11. What is the purpose of feed dog?
12. What is the object of feed of the arm sewing machine?
13. What is the purpose of blind stitch machine?
14. What is the main difference between lock stitch and zig-zag stitch machine?
15. What are the types of spreading?
16. What is the drawback of round knife cutting machine?
17. What are the advantages of special attachments?
18. What is the objective of finishing?
19. What is the objective of pressing?
20. What is spotting process?

PART C

Answer all the Question, Choosing either A or B from each question (5 x 15 = 75)

- | | | | |
|----|---|---|---|
| 21 | A | (i) Explain the different types of cams and functions. | 8 |
| | | (ii) Explain in detail about the pressure circulating lubricating system. | 7 |
| | | (OR) | |
| | B | (i) Explain in detail about the bearings. | 8 |
| | | (ii) Explain the working of single plate friction clutch. | 7 |
| 22 | A | (i) Explain the parts and functions of lock stitch sewing machine. | 8 |
| | | (ii) Explain the timed sequence in lock stitch machine. | 7 |
| | | (OR) | |
| | B | (i) Explain the types of beds in sewing machine. | 8 |
| | | (ii) Explain the correction methods in bobbin and spool thread tension. | 7 |
| 23 | A | (i) Explain about the feed mechanism in sewing machine. | 8 |
| | | (ii) Draw the threading diagram of 3 thread over lock machine. | 7 |
| | | (OR) | |
| | B | (i) Explain briefly about the buttonhole sewing machine. | 8 |
| | | (ii) Draw the threading diagram of 5 thread flat lock machine. | 7 |
| 24 | A | (i) Explain the types of foots. | 8 |
| | | (ii) Explain the working of straight knife cutting machine. | 7 |
| | | (OR) | |
| | B | (i) Explain the types of guides. | 8 |
| | | (ii) Explain the working of band knife cutting machine. | 7 |
| 25 | A | (i) Draw the process flow chart of garment finishing. | 8 |
| | | (ii) Explain the working of continuous fusing machine. | 7 |
| | | (OR) | |
| | B | (i) Explain the process of tunnel finisher. | 8 |
| | | (ii) Explain the maintenance of sewing machines in garment industry. | 7 |

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)
N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4066440

Semester: IV Semester

Subject Title: PATTERN DRAFTING AND CONSTRUCTION - I

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	
4066440 Pattern Drafting and Construction - I	5	80	25	100*	100	3 Hrs

* Examinations will be conducted for 100 marks and will be reduced to 75 marks.

Topics and Allocation of Hours:

S. No	Topics	Hours
I	Pattern drafting of Infants wear	15
II	Pattern drafting of Frocks	15
III	Pattern drafting for Girls wear	15
IV	Pattern drafting for Boys wear	14
V	Pattern drafting for Ladies' wear	14
	Test & Revision	7
Total		80

RATIONALE:

Pattern drafting is the nerve centre of garment making. Every garment parts are draft to its size for lateral assembling into a garment. This procedure helps to make perfect garment to various sizes. Any alteration is also made within the pattern. The patterns can also be stored for ever and repeated orders are carried out at ease. From the patterns layout is made simple and better marker efficiency is achieved for minimum consumption of fabrics.

OBJECTIVES:

At the end of the study of IV Semester the student will be able to

- Understand the drafting procedure for infants' style.
- Learn the layout and construction procedure for infants' style.
- Understand the drafting procedure for frock styles.
- Learn the layout and construction procedure for frock styles.
- Understand the drafting procedure for girls' style.
- Learn the layout and construction procedure for girls' style.
- Understand the drafting procedure for boys' style.
- Learn the layout and construction procedure for boys' style.
- Understand the drafting procedure for ladies style.
- Learn the layout and construction procedure for ladies style.

4066440 PATTERN DRAFTING AND CONSTRUCTION- I

DETAILED SYLLABUS

Contents: Theory

Unit	Name of the Topic	Hours
I	PATTERN DRAFTING OF INFANTS WEAR Pattern making of Pilch Knicker, Zabala, Bloomers, Body suit (One-piece baby cloth) – with styles description – suitable fabrics - Layout, fabric consumption calculation and construction procedure.	15
II	PATTERN DRAFTING OF FROCKS Introduction to frocks - Pattern making of A line Frock, Yoke Frock, Umbrella Frock, Frock petticoat - with style description – suitable fabrics - Lay out, Fabric Consumption Calculation and Construction procedure.	15
III	PATTERN DRAFTING FOR GIRLS WEAR Pattern making of Pinafore, Skirt blouse, Plain blouse, Peddle Pusher - with style description- suitable fabrics – Lay out, Fabric Consumption Calculation and construction procedure.	15
IV	PATTERN DRAFTING FOR BOYS WEAR Pattern making for Boys shorts, Pyjama, T shirt, Plain shirt - with style description – suitable fabrics- Lay out, Fabric Consumption Calculation and Construction procedure.	14
V	PATTERN DRAFTING FOR LADIES WEAR. Pattern making of Modern Salwar, Chudidhar, Kameez, Ladies shirt - with style description – suitable fabrics - Lay out, Fabric Consumption Calculation and Construction procedure.	14

Text Book:

Title	Author	Publisher	Year
The Art Of Sewing	Anna Jacob Thomas.	Ubs Publishers, Delhi.	2001
Practical Clothing Constructions Part I & II	Mary Mathews	Paprinpack Printers,Chennai.	1985
Zarapkar System Of Cutting.	K.R.Zarapkar	Navneet Publications (I) Ltd.,Dantali. Gujarat.	2015

Reference:

Title	Author	Publisher	Year
Sew It Yourself.	Lippman (Gidon)	Prentice Hall Inc New Jersey	2002
Metric Pattern Cutting For Children's Wear	Winfred Aldrich	Blackwell science	1991
Pattern Design For Children's Clothes	Gloria Mortimer-Dunn	BT Batsford Ltd,London	1996
Clothing For Moderns	Erwine	Macmillan Pub.Co., New York.	1992
Comparative Clothing Construction Techniques	Virginn Stolpe Lewis	Surjeetpublications Delhi.	2015
Scientific Garments Cutting	K.M.Hegde	K.M.Hegde & Sons, Poona	1989
Art In Everyday Life	Harriet Goldstein Vetta Goldstein	Oxford & IBH Publishing	1982

Board Examination-Question Paper Pattern

For Pattern Drafting and Construction - I

Note: Clarkes Table and Programmable Calculators are not permitted.

Relevant data should be provided in the question paper for solving the problems if any required.

Time: 3 Hrs.

Max.Marks:100

PART – A Five questions will be asked covering all units. All questions are to be answered. Each question carries 1 mark.

PART- B Fifteen questions will be asked covering all the units. Three questions from each unit. Answer any ten questions. Each question carries 2 marks.

PART-C Five questions will be asked Either or type. One question from every unit. Answer either A or B. Each question carries 15 marks. A and B have Subdivisions. (7 + 8)

The questions are to be numbered from 1 to 25. All the units are to be covered with equal weight age.

PART A Definitions and Statements. Question Number 1 to 5	5 X 1 = 5 Marks
PART B Short answer type questions Question Number 6 to 20	10 X 2 = 20 Marks
PART C Descriptive answer type questions (Either A or B) Question number 21 to 25	5 X15 = 75 Marks
TOTAL	100 Marks *

Note: Board Examinations will be conducted for 100 Marks and converted to 75 Marks.

MODEL QUESTION PAPER

Subject: Pattern Drafting and Construction - I

Time: 3 Hrs.

Max. Marks: 100

PART A

Answer all the Questions

(5 x 1 = 5)

1. What is the suitable fabric for infant wear?
2. Mention the types of frock.
3. What you mean by T- shirt?
4. What is pinafore?
5. What is the suitable top garment for chudidhar?

PART B

Answer any 10 Questions

(10x 2 = 20)

6. Draw a body suit and mention its parts.
7. What is the purpose of Piltch knicker?
8. Mention the measurements for infant.
9. Compare A Line frock and Yoke frock.
10. What area the suitable fabric for frock styles?
11. Draw a style of Frock petticoat and mention its parts.
12. What is peddle pusher?
13. What is the purpose of skirt blouse?
14. Mention the measurements required for plain blouse.
15. List some of the boys' garment.
16. Mention measurement of T Shirt.
17. Mention the components of Boys' shirt.
18. Mention the suitable fabrics for ladies' wear.
19. What is the purpose of vent in kameez?
20. Compare Men's and Ladies' shirt.

PART C

Answer all the Question, Choosing either A or B from each question (5 x 15 = 75)

- | | | | | |
|----|---|------|---|---|
| 21 | A | (i) | Explain the pattern drafting procedure of Zabla. | 8 |
| | | (ii) | Explain the layout and construction procedure of Zabla. | 7 |
| | | | (OR) | |
| | B | (i) | Explain the pattern drafting procedure of body suit. | 8 |
| | | (ii) | Explain the layout and construction procedure of body suit. | 7 |
| 22 | A | (i) | Explain the pattern drafting procedure of Umbrella frock. | 8 |
| | | (ii) | Explain the layout and construction procedure of umbrella frock. | 7 |
| | | | (OR) | |
| | B | (i) | Explain the pattern drafting procedure of frock petticoat. | 8 |
| | | (ii) | Explain the layout and construction procedure of frock petticoat. | 7 |
| 23 | A | (i) | Explain the pattern drafting procedure of skirt blouse. | 8 |
| | | (ii) | Explain the layout and construction procedure of skirt blouse. | 7 |
| | | | (OR) | |
| | B | (i) | Explain the pattern drafting procedure of Peddle pusher. | 8 |
| | | (ii) | Explain the layout and construction procedure of Peddle pusher. | 7 |
| 24 | A | (i) | Explain the pattern drafting procedure of T Shirt. | 8 |
| | | (ii) | Explain the layout and construction procedure of T Shirt. | 7 |
| | | | (OR) | |
| | B | (i) | Explain the pattern drafting procedure of Boys shorts. | 8 |
| | | (ii) | Explain the layout and construction procedure of Boys shorts. | 7 |
| 25 | A | (i) | Explain the pattern drafting procedure of Modern Salwar. | 8 |
| | | (ii) | Explain the layout and construction procedure of Modern Salwar. | 7 |
| | | | (OR) | |
| | B | (i) | Explain the pattern drafting procedure of Kameez. | 8 |
| | | (ii) | Explain the layout and construction procedure of Kameez. | 7 |

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)
N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4067340

Semester: III Semester

Subject Title: TEXTILE MANUFACTURING PROCESS 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	
4067340 Textile Manufacturing Process Practical	5	80	25	100*	100	3 Hrs

* Examinations will be conducted for 100 marks and will be reduced to 75 marks.

RATIONALE:

This practical is helpful to study different spinning machineries and identify the functions of main parts of the machine from blow room to spinning. So the students will have hands on experience in the spinning machines. This also helps providing good exposure to the different types of fabric structures

GUIDELINES:

- All the twelve 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 student should be provided with a separate drawing table 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 three students while examining a batch of 30 students during Board Examinations.

ALLOCATION OF MARKS

Experiment Execution	40 marks
Write up	30 marks
Diagram	20 marks
Viva	10 marks
Total	100 marks

OBJECTIVES:

CARDING

To sketch the Cylinder in a carding machine.

DRAWFRAME

To Sketch the driving arrangement of a draw frame.

RING FRAME

To sketch the given ring frame

POST SPINNING PROCESS

To sketch the given TFO.

To analysis Woven Fabric for the following design

Plain, 4/4 Mat, Twill , Pointed Twill, Herringbone, Satin, Sateen, Honey Comb and Huck-a-back.

LIST OF EQUIPMENT

1. Carding Machine.
2. High Speed Draw frame
3. High Speed Ring Spinning Frame
4. TFO
5. Cloth samples for basic weaving structure analysis

Materials required :

Graph sheets and Woven fabric samples

Counting Glass - 30 No / experiment / batch of 30 students

THIRD SEMESTER**4067450 TEXTILE MANUFACTURING PROCESS PRACTICAL****LIST OF EXPRIEMENTS**

1. Tracing the passage of material through HP Carding machine and identifying the parts and functions.
2. Tracing the passage of material through High Speed Drawframe and identifying the parts and functions.
3. Tracing the passage of material through Ring Frame and identifying the parts and functions.
4. Tracing the passage of material through Two For One Twister (TFO) and identifying the parts and functions.
5. Analysing the given cloth- Plain
6. Analysing the given cloth – 4/4 Mat
7. Analysing the given cloth – Twill
8. Analysing the given cloth – Pointed Twill
9. Analysing the given cloth – Satin
10. Analysing the given cloth – Sateen
11. Analysing the given cloth – Honey Comb
12. Analysing the given cloth – Huck-a-back

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)
N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4067460

Semester: IV Semester

Subject Title: KNIT STRUCTURES - II 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	
4067460 Knit Structures – II Practical	4	64	25	100*	100	3 Hrs

* Examinations will be conducted for 100 marks and will be reduced to 75 marks.

RATIONALE:

This practical is helpful to analyze the weft knitted Jacquard fabric, socks and warp knitted fabric structures and to calculate the production of Warp Knitted Structures

GUIDELINES:

- All the twelve 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 student should be provided with a separate drawing table 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 three students while examining a batch of 30 students during Board Examinations.

ALLOCATION OF MARKS

Experiment	60 marks
Write up	30 marks
Viva	10 marks
Total	100 Marks

OBJECTIVES:

- To analyze the given socks and warp knit fabric structures
- To calculate the production of warp knitting
- To analyze the Jacquard fabric structures
- To draw the chain link arrangements for the structures

LIST OF EQUIPMENT

Counting Glass - 30 No / experiment / batch of 30 students

Materials required :

Graph sheet

Jacquard fabric samples, Socks and Warp Knitted fabric samples

LIST OF EXPERIMENTS

1. Analyze and draw the repeat of the given Single Jersey Jacquard Fabric
2. Analyze and draw the repeat of the given Rib Jacquard Fabric
3. Analyze and draw the repeat of the socks pattern (a) Pattern 1 (b) Pattern 2 (c) Pattern 3
4. Analyze and draw the repeat of the socks pattern (a) Pattern 4 (b) Pattern 5 (c) Pattern 6
5. Draw the five basic lapping variations of the warp knitted structure
6. Analyze and draw the repeat of the Full Tricot Fabric and give the chain link arrangements
7. Analyze and draw the repeat of the Locknit Fabric and give the chain link arrangements
8. Analyze and draw the repeat of the Reverse Locknit Fabric and give the chain link arrangements
9. Analyze and draw the repeat of the Satin Fabric and give the chain link arrangements
10. Analyze and draw the repeat of the Queens Cord Warp knit Fabric and give the chain link arrangements
11. Analyze and draw the repeat of the Marquisette Warp Knitted Fabric and give the chain link arrangements
12. Calculate the production of the Two Guide Bar Tricot Warp Knitting Machine with the given particulars

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)
N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4067470

Semester: IV Semester

Subject Title: KNITTED GARMENT PATTERN DRAFTING 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	
4067470 Knitted Garment Pattern Drafting Practical	4	64	25	100*	100	3 Hrs

* Examinations will be conducted for 100 marks and will be reduced to 75 marks.

RATIONALE:

Pattern drafting is the nerve centre of garment making. Every garment parts are draft to its size for lateral assembling into a garment. This procedure helps to make perfect garment to various sizes. Any alteration is also made within the pattern. The patterns can also be stored for ever and repeated orders are carried out at ease. From the patterns layout is made simple and better marker efficiency is achieved for minimum consumption of fabrics.

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 sewing machine with attachments for creating garments 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

Garment Construction	60 marks
Layout & Construction Procedure	30 marks
Viva	10 marks
Total	100 marks

OBJECTIVES OF THE EXPERIMENTS:

Pattern Preparation / Construction of Knitted Garments

MEN'S T – SHIRT – ROUND NECK/V-NECK and POLO

To prepare pattern for Men's T-shirt, using the given measurement with half sleeve, full sleeve and Raglan sleeve.

MEN'S TRACK SUIT

To prepare pattern for Men's Track suit, using the given measurement.

WOMEN'S TOPS

To prepare pattern for Women's Tops, using the given measurement for different types of neck and sleeve arrangement.

WOMEN'S SKIRT

To prepare pattern for Women's Skirt, using the given measurement for different types of neck and sleeve arrangement.

WOMEN'S SINGLETS

To prepare pattern for Women's Singlet, using the given measurement.

MEN'S VEST

To prepare pattern for Men's Vest using the given measurement.

MEN'S SWEAT SHIRT

To prepare pattern for Men's Sweat Shirt using the given measurement.

MEN'S HOODIE WITH DRAW STRING

To prepare pattern for Men's HOODIE using the given measurement.

LIST OF EQUIPMENT

Equipment required:

- Pattern table - 8'x4' table - 4 nos.
- Sewing Machines – 6 Nos

Materials required:

- Pattern paper - 30 no / experiment / batch of 30 students
- Measuring, drafting & cutting tools - 30/ batch of 30 students

LIST OF EXPERIMENTS

1. Prepare the paper pattern and calculate fabric consumption for the Garment – Knitted Men's Polo T-shirt with half sleeve.
2. Prepare the paper pattern and calculate fabric consumption for the Garment – Knitted Men's Polo T-shirt with Full sleeve
3. Prepare the paper pattern and calculate fabric consumption for the Garment – Knitted Men's Round Neck T-shirt
4. Prepare the paper pattern and calculate fabric consumption for the Garment – Knitted Men's V-Neck T-shirt
5. Prepare the paper pattern and calculate fabric consumption for the Garment – Knitted Men's T-Shirt with Raglan Sleeve
6. Prepare the paper pattern for the Garment – Women's Singlets
7. Prepare the paper pattern for the Garment – Men's Vest
8. Prepare the paper pattern for the Garment – Women's Knitted Skirt
9. Prepare the paper pattern for the Garment – Men's hoodie with draw string
10. Prepare the paper pattern for the Garment – Knitted Men's Track suit
11. Prepare the paper pattern for the Garment – Knitted Women's Top
12. Prepare the paper pattern for the Garment – Knitted Men's Sweat Shirt

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)
N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4060510

Semester: V Semester

Subject Title: TEXTILE TESTING

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	
4060510 TEXTIEL TESTING	5	80	25	100*	100	3 Hrs

* Examinations will be conducted for 100 marks and will be reduced to 75 marks.

Topics and allocation

Sl. No	Topic	Time (hrs.)
1	MOISTURE AND ITS RELATIONS IN TEXTILES	15
2	FIBRE TESTING	15
3	YARN TESTING:	15
4	FABRIC TESTING:	14
5	STATISTICAL QUALITY CONTROL	14
6	TEST & REVISION	07
Total		80

RATIONALE:

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

OBJECTIVES

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

4060510 TEXTILE TESTING

DETAILED SYLLABUS

Content : Theory

Unit	Name of the Topic	Hours
1	MOISTURE AND ITS RELATIONS IN TEXTILES Humidity and its importance in Textiles - Definitions of Absolute Humidity, Relative Humidity, Standard Testing atmospheric condition, Measurement of Humidity - Wet and dry bulb Hygrometer, Definition of Moisture content, Moisture regain - Estimation of moisture content and regain using Conditioning oven and Shirley Moisture meter, Standard regain – Definition - standard regain values of cotton, viscose, silk, wool, nylon, polyester, Tencel, Linen and Bamboo - Effect of moisture regain on fibre properties. Factors affecting moisture regain.	15
2	FIBRE TESTING Length – Importance of fibre length - Definition of effective length and span length - Methods of measuring fibre length by 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 – Principles of measurement of Fibre properties in High volume instrument, Brief Idea about Advanced Fibre Information System (AFIS)	15
3	YARN TESTING Yarn count – Determination of yarn count by Auto sorter and Beesley balance - Importance of CSP and RKM - Importance of Twist - Estimation of yarn twist by Electronic Twist Tester – single	15

	yarn, doubled yarn. Importance of yarn strength - Principle of working of yarn strength testers – CRE,CRL and CRT - Working of single yarn strength tester of pendulum lever type, lea strength tester and principle of Instron tester. Yarn irregularities – thick, thin, slub, nep - Methods of Assessing yarn evenness by yarn - appearance board and Uster Evenness Tester 4 - Brief study of Uster classmate, Yarn Hariness Index – Definition. Comparison between Online and Offline Testing of Yarn.	
4	FABRIC TESTING Crimp-Definition, Importance – Shirley crimp tester. Study of Shirley stiffness tester and Shirley crease recovery tester. Definition of fabric handle, serviceability, abrasion, pilling and drape. Importance of fabric tensile strength, tearing strength and bursting strength. Study of fabric tensile strength tester. Definition of Fabric Air Permeability and Fabric Air Resistance, Kawabata – Objective measurement of Subjective Properties.	14
5	STATISTICAL QUALITY CONTROL Classification and Tabulation of Data - Frequency Diagram – Histogram and frequency polygon. Measures of Central tendency - Mean, Median, Mode. Simple Calculation of Mean, Median, Mode. Measures of dispersion - Mean Deviation, Percent Mean Deviation, Standard Deviation and Co-efficient of variation. Simple calculation of MD,PMD,SD & CV. Normal distribution curve, Variance Length Curve and its properties. Quality Control Chart - Definition, use, Construction of control chart for Averages and Ranges, Six Sigma Concept.	14

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

Board Examination-Question Paper Pattern

For all theory subjects

Note: Clarkes Table and Programmable Calculators are not permitted.

Relevant data should be provided in the question paper for solving the problems if any required.

Time: 3 Hrs.

Max.Marks:100

PART – A Five questions will be asked covering all units. All questions are to be answered. Each question carries 1 mark.

PART- B Fifteen questions will be asked covering all the units. Three questions from each unit. Answer any ten questions. Each question carries 2 marks.

PART-C Five questions will be asked Either or type. One question from every unit. Answer either A or B. Each question carries 15 marks. A and B have Subdivisions. (7 + 8)

The questions are to be numbered from 1 to 25. All the units are to be covered with equal weight age.

PART A Definitions and Statements. Question Number 1 to 5	5 X 1 = 5 Marks
PART B Short answer type questions Question Number 6 to 20	10 X 2 = 20 Marks
PART C Descriptive answer type questions (Either A or B) Question number 21 to 25	5 X15 = 75 Marks
TOTAL	100 Marks *

Note: Board Examinations will be conducted for 100 Marks and converted to 75 Marks.

MODEL QUESTION PAPER

Subject: Textile Testing

Time: 3 Hrs.

Max. Marks: 100

PART A

Answer all the Questions

(5 x 1 = 5)

1. Define: Humidity.
2. Define: Span length
3. What is RKM?
4. What is pilling?
5. Define: Mode.

PART B

Answer any 10 Questions

(10x 2 = 20)

6. Define the term relative humidity.
7. Give the moisture regain value for cotton, silk, wool and linen.
8. State the effect of moisture regain on fiber properties.
9. What is Fiber Quality Index?
10. Write the importance of fibre fineness.
11. What is maturity co-efficient?
12. Define Yarn Hariness Index.
13. Define: English Count.
14. Write a short note on Uster Classimat.
15. Define the term Air permeability.
16. Write the importance of Crimp.
17. Define the term drape.
18. Define: Percentage Mean Deviation.
19. What is Six Sigma Concept?
20. What is tabulation of data?

PART C

Answer all the Question, Choosing either A or B from each question (5 x 15 = 75)

- | | | | | |
|----|---|------|---|---|
| 21 | A | (i) | How do you measure the relative humidity using Wet and Dry bulb hygrometer? | 8 |
| | | (ii) | Explain estimation of moisture content and regain using conditioning oven | 7 |

(OR)

- | | | | |
|---|-----|---|---|
| B | (i) | Explain the factors affecting moisture regain | 8 |
|---|-----|---|---|

	(ii)	With a sketch explain the Shirley Moisture Meter	7
22	A	(i) Explain the method of measuring fibre length using Digital Fibro Graph	8
		(ii) Explain measurement of fibre maturity by sodium hydroxide swelling method	7
		(OR)	
	B	(i) Explain the estimation of trash content by Shirley Trash Analyser	8
		(ii) Explain the method of measuring fibre fineness by Sheffield micronaire instrument	7
23	A	(i) Explain the estimation of single yarn twist by electronic twist tester	8
		(ii) Explain the working of single yarn strength tester	7
		(OR)	
	B	(i) Explain the method of measuring yarn evenness by Uster Evenness Tester 4	8
		(ii) Compare between Online and Offline Testing of yarn	7
24	A	(i) Explain the procedure for measuring fabric Crimp by using Shirley Crimp Tester	8
		(ii) Write the importance of fabric tensile strength, tearing strength and busting strength	7
		(OR)	
	B	(i) Explain the procedure for measuring fabric stiffness by using Shirley Stiffness Tester	8
		(ii) Explain the procedure for objective measurement of subjective properties in Kawabata	7
25	A	(i) Calculate mean, median, standard deviation and co-efficient of variation percentage for the following data: 30.5, 30.4, 31.2, 30.8, 30.1, 32.8, 30.5, 31.1, 30.3, 30.4.	8
		(ii) Write the steps for constructing the control charts for mean and range	7
		(OR)	
	B	(i) Explain the Histogram and Frequency Polygon	8
		(ii) Explain normal distribution curve and also give its properties	7

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)
N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4060520

Semester: V Semester

Subject Title: TEXTILE WET PROCESSING

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
4060520 Textile Wet Processing	5 Hrs	80Hrs	Internal Assessment	Board Examination	Total	
			25	100*	100	3 Hrs

* Examinations will be conducted for 100 marks and it will be reduced to 75 marks.

Topics and allocation

Sl. No	Topic	Time (hrs.)
1	Preparatory and Bleaching Process	15
2	Dyeing Process	15
3	Printing Process	15
4	Finishing Process	14
5	Quality and pollution Control	14
6	TEST & REVISION	07
Total		80

RATIONALE

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

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

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

Objectives

- To understand the Preparatory process of Textiles
- To learn about Process of Bleaching.
- To learn different types of Dyes and applications
- To learn about 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

4060520 TEXTILE WET PROCESSING
DETAILED SYLLABUS

Content : Theory

Unit	Name of the Topic	Hours
1	Preparatory and Bleaching Process Sequence of wet processing treatments for Yarn, Woven and Knitted with objectives of each treatment - Singeing - Gas Singeing Machine for woven fabric with line diagram - Desizing – Continuous Enzyme desizing method and its merits - - Scouring - Mechanism of scouring - Process of caustic scouring using high pressure kier. Bleaching – Hydrogen Peroxide Bleaching- Continuous scouring and bleaching using Continuous Bleaching Range (CBR) –Optical Brightening Agent treatment	15
2	Dyeing Process Definition of dyeing - Classification of dyes based on their mode of application - Dyeing of cotton with Reactive dyes and vat dyes - Dyeing of wool with acid dyes - Dyeing of silk with basic dyes - Dyeing of Polyester with Disperse dyes – salt free dyeing using pad batch method - Dyeing machines - Working of jigger Soft flow jet dyeing machine , Air flow jet dyeing machine - HTHP Beam dyeing machine, cheese dyeing machine. Garment dyeing – Advantage and disadvantage – Working of drum type Garment dyeing machine	15
3	Printing Process Definition and objective of printing - Comparison between dyeing and printing –Styles and methods of printing - Definition and functions of Ingredients of printing paste.	15

	Direct style of printing with pigments on cotton - Direct style of printing with reactive dyes on cotton - Direct style of printing with Disperse dyes on polyester - Screen preparation - Flat bed screen printing machine - Rotary screen printing machine - curing machine -steamer	
4	Finishing Process Purpose of finishing - Stiff finishing of cotton fabric with Starch, Polyvinyl Acetate –Types of softeners and their properties - wrinkle free finish-Sanforizing – Mercerisation - Advantages – Chainless mercerising machine - calendering - Hot air stenters Anti crease finish with DMDHEU Resin - Brief study on antimicrobial finish- Anti viral finish - UV protective finish - water repellent finish - Flame retardant finish (Only objectives and recipe)	14
5	Quality and pollution Control Importance of Quality Control –Different Fastness Tests for dyed and printed materials - Determination of wash fastness - Wet and Dry rubbing fastness- Shrinkage test – Computer Colour Matching - Objectives & Limitations – Importance and need of environment protection - Air, water and noise pollution. Brief study on Effluent Treatment Process flow chart only. Brief study on eco-friendly processing - List of banned chemicals and alternatives..	14

TEXT BOOKS:

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

REFERENCE BOOKS :

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

MODEL QUESTION PAPER
Subject: Textile Wet Processing

Time : 3 hrs

Max marks: 100

Part-A

Answer all the Questions

5X1=5 Marks

1. What is the object of singeing?
2. Define Dyeing?
3. What are the styles in printing?
4. What is the use of hot air stenter?
5. What are different types of Environment pollution?

Part –B Answer any 10 Questions

10X2=20 Marks

6. Write the sequence of wet processing treatment for woven fabrics?
7. State the advantages of enzyme desizing?
8. What do you mean by Optical brightening agents?
9. Mention the steps involved in Vat dyes with cotton?
10. Give the advantages of Soft flow Dyeing machines?
11. What are the advantages of garment dyeing machine?
12. Give the principle of Discharge Printing?
13. Mention the ingredients of Printing Paste?
14. What is the Object of Curing?
15. What do you mean by Wrinkle free finish?
16. Give the advantages of calendaring?
17. What do you mean by Mercerization Treatment?
18. Give the Object of Wash Fastness Test?
19. Write the importance of quality control?
20. List out few names of Banned chemicals?

PART C

Answer all the Question, Choosing either A or B from each question (5 x 15 = 75)

- | | | | |
|----|---|---|---|
| 21 | A | (i) Explain the working of gas singeing machine with a neat sketch? | 8 |
| | | (ii) Explain continuous desizing method with a neat sketch? | 7 |
| | | (OR) | |
| | B | (i) Explain the process of caustic scouring using high pressure kier boiling? | 8 |
| | | (ii) Explain in detail about the Hydrogen Peroxide Bleaching? | 7 |
| 22 | A | (i) Explain with neat sketch the working of soft flow Jet Dyeing machine. | 8 |
| | | (ii) Explain the working of Drum type garment dyeing machine. | 7 |
| | | (OR) | |
| | B | (i) Explain the Dyeing procedure of cotton with Reactive dyes? | 8 |
| | | (ii) Explain the dyeing Procedure of silk with Basic dyes? | 7 |
| 23 | A | (i) Explain the different types of printing ingredients? | 8 |
| | | (ii) Explain the printing of cotton with pigments in direct style? | 7 |
| | | (OR) | |
| | B | (i) Explain with a neat sketch the working of Rotary printing machine? | 8 |
| | | (ii) Explain the procedure for Screen preparation? | 7 |
| 24 | A | (i) Explain the procedure for finishing of cotton fabric using starch? | 8 |
| | | (ii) Explain in detail the working of chainless fabric mercerizing machine? | 7 |
| | | (OR) | |
| | B | (i) Explain the working of Sanforizing machine with a neat sketch? | 8 |
| | | (ii) Write notes on Anti microbial finish and Water repellent finish? | 7 |
| 25 | A | (i) Explain the method of determination of color fastness to light? | 8 |
| | | (ii) Explain about the limitations of computer color matching? | 7 |
| | | (OR) | |
| | B | (i) Explain the Effluent treatment process with suitable plant layout? | 8 |
| | | (ii) Explain the importance and need of environments protection? | 7 |

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)
N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4066531

Semester: V Semester

Subject Title: APPAREL MERCHANDISING

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	
4066531 Apparel Merchandising	5	80	25	100*	100	3 Hrs.

* Examinations will be conducted for 100 marks and will be reduced to 75 marks.

Topics and Allocation of Hours:

S. No	Topics	Hours
I	Introduction to Merchandising	15
II	Merchandise Planning	15
III	Retail & Visual Merchandising	15
IV	Garment Costing	14
V	Marketing Techniques & sales promotion	14
	Test & Revision	7
Total		80

RATIONALE:

Apparel merchandising is the common word prevailing in the Garment Industry. Every export unit is having merchandising wing. The officials in this wing are responsible for the execution of orders right from receiving orders to dispatching of goods. This subject gives an in-depth knowledge on various type of merchandising, the planning, the nature of work of a merchandiser along with the marketing techniques and sale promotion activities.

OBJECTIVES:

At the end of the study of V Semester the student will be able to

- Understand the merchandising procedures.
- Learn the functions of merchandiser.
- Understand the retail merchandising procedures.
- Learn the pricing procedures.
- Understand the visual merchandising procedures.
- Learn the trends in visual merchandising.
- Understand the merchandising plan.
- Learn to prepare merchandising calendar and activities.
- Learn the marketing techniques.
- Understand the advertising techniques.
- Learn the sales promotion techniques.

4066531 APPAREL MERCHANDISING

DETAILED SYLLABUS

Content: Theory

Unit	Name of the Topic	Hours
I	INTRODUCTION TO MERCHANDISING Terminology in merchandising - Customer, Consumer, Buyer, Importer, Retailer, Exporter and Trader. Season of export – Spring, Summer, Winter & Autumn. Types of Buyer and buying offices. Merchandising – Definition – Process flow of merchandising – Role of merchandiser – Skills of Merchandiser. Sampling – Types of samples - Development sample, Salesman sample, Approval sample, Preproduction sample, Production sample, Shipment sample. Brief study of Garment export procedure - Specification file – BOM sheet – order confirmation – purchase order – PP Meeting – Compliance.	15
II	MERCHANDISE PLANNING Merchandising plan – Planning sales goals – Buying plan – Assortment Planning – Open to buy – Purpose of a six months plan, Elements of a six-month plan – Analysis of previous merchandising plan and developing a new plan - Planning components - Merchandising calendar and scheduling. Direct order - Merchant order - CMT order - Vendor and sub-contractor - Requirement of a purchase order - Buyer seller meets.	15
III	RETAIL & VISUAL MERCHANDISING Introduction to Retail Merchandising – Types of retail merchandising - Department stores – Discounters – Off-price retailers – Outlet source – Close out - Warehouse clubs – Non-store retailing – Mail order Merchants – E Tailing. Definition of Visual Merchandising – Elements of Visual Merchandising - Signage, Marquee, Entries, window display, Lighting & Awnings - Principles of Displays – Responsibility in visual merchandiser – Methods of display – Problems in display.	15

IV	GARMENT COSTING Components of costing – Prime cost – Over heads – Total cost. Garment Costing – Fabric consumption – Sewing thread consumption - CMT charges for various styles – Costing of woven garment full Sleeve shirt and Trouser– Costing of Knitted garment - T shirt, night gown. Retail pricing – Mark up – Price point – Markdown – Promotional pricing – Deceptive pricing.	14
V	MARKETING TECHNIQUES & SALES PROMOTION Marketing – Definition - Principles – Objectives – Strategies - Brief study of E-marketing. Advertisement Techniques – Broadcast Advertising – Radio advertising – Television Advertising – Magazines – Out-of-home advertising - Advertisement effectiveness. Consumer behavior in fashion - Sales promotion approaches & effectiveness - Distribution channels.	14

Text Book:

Title	Author	Publisher	Year
Marketing Management	Philip . Kotler Kevin Lane Keller	Prentice Hall	2006
Fashion Marketing & Merchandising	Manmeet Sodhia	Kalyani Publishers	
Fashion buying & Merchandising Management	Tim Jackson & David Shaw	Palgrave Master Series	2001
Apparel Manufacturing	Ruth E. Glock Grace I. Kunz	A Simson & Schuster company, Singapore	1995

Reference:

Title	Author	Publisher	Year
Export management	Balagopal.T.A.S	Himalaya Publishing House, Bombay.	1984
Inside the fashion business	Kitty G. Dicerson	Dorling Kindesley(India) Pvt Ltd., New Delhi	2007
Fashion Retailing	Ellen Diamond	Dorling Kindesley(India) Pvt Ltd., New Delhi	2007
Foundations of advertising Theory & Practice	Chunnawala Sethia	Himalaya Publishing House, Bombay	1985
Retail Merchandising	Ernest H Rich	Merrill Publishing company	
Fashion Sales Promotion	Pamela M.Phillips	A Simson & Schuster company , New Jersey	1985
Fashion Marketing	Mike Easey	Blackwell Publishing	2005
Fashion Marketing	Hines & Bruce	Butter worth - Heinemann	2006
Merchandise Buying and Management	Donnellecen John	Fairchild Publication Inc., NY	1999

Board Examination-Question Paper Pattern

Subjects – Apparel Merchandising

Note: Clarkes Table and Programmable Calculators are not permitted.

Relevant data should be provided in the question paper for solving the problems if any required.

Time: 3 Hrs.

Max.Marks:100

PART – A Five questions will be asked covering all units. All questions are to be answered. Each question carries 1 mark.

PART- B Fifteen questions will be asked covering all the units. Three questions from each unit. Answer any ten questions. Each question carries 2 marks.

PART-C Five questions will be asked Either or type. One question from every unit. Answer either A or B. Each question carries 15 marks. A and B have Subdivisions. (7 + 8)

The questions are to be numbered from 1 to 25. All the units are to be covered with equal weight age.

PART A Definitions and Statements. Question Number 1 to 5	5 X 1 = 5 Marks
PART B Short answer type questions Question Number 6 to 20	10 X 2 = 20 Marks
PART C Descriptive answer type questions (Either A or B) Question number 21 to 25	5 X15 = 75 Marks
TOTAL	100 Marks *

Note: Board Examinations will be conducted for 100 Marks and converted to 75 Marks.

MODEL QUESTION PAPER

Subject: Apparel Merchandising

Time: 3 Hrs.

Max. Marks: 100

PART A

Answer all the Questions

(5 x 1 = 5)

1. Who is customer?
2. What you mean by CMT?
3. What you mean by signage?
4. What is prime cost?
5. Define – Marketing.

PART B

Answer any 10 Questions

(10x 2 = 20)

6. Mention the seasons of export.
7. Define - Merchandiser.
8. What you mean by BOM?
9. What is merchant order?
10. Who is vendor?
11. What is direct order?
12. What is e-tailing?
13. What is departmental store?
14. What is the problem in display?
15. What are elements of costing?
16. What is price point?
17. What is markdown?
18. What is E-Marketing?
19. How will you improve the sales?
20. What is the objective of marketing?

PART C

Answer all the Question, Choosing either A or B from each question (5 x 15 = 75)

- | | | | |
|----|---|--|---|
| 21 | A | (i) Explain the process flow of merchandising. | 8 |
| | | (ii) Explain about the PP meeting. | 7 |
| | | (OR) | |
| | B | (i) Explain the skill required for merchandiser. | 8 |
| | | (ii) Explain the types of sample. | 7 |
| 22 | A | (i) Explain in detail about the six-month plan. | 8 |
| | | (ii) Explain the importance of buyer seller meet. | 7 |
| | | (OR) | |
| | B | (i) Explain detail about the Merchandising calendar and scheduling | 8 |
| | | (ii) Explain the analysis of merchandising plan. | 7 |
| 23 | A | (i) Calculate the garment costing of woven pleated trouser. | 8 |
| | | (ii) Explain the different types of pricing. | 7 |
| | | (OR) | |
| | B | (i) Calculate the garment costing of T-Shirt. | 8 |
| | | (ii) Explain the calculation of sewing thread consumption. | 7 |
| 24 | A | (i) Explain the elements of visual merchandising. | 8 |
| | | (ii) Explain the responsibility of visual merchandiser. | 7 |
| | | (OR) | |
| | B | (i) Write notes on – warehouse club & Non-store retailing. | 8 |
| | | (ii) Write notes on – Methods of display. | 7 |
| 25 | A | (i) Explain the principles of marketing. | 8 |
| | | (ii) Explain the consumer behaviors in fashion. | 7 |
| | | (OR) | |
| | B | (i) Explain the effectiveness of Advertising. | 8 |
| | | (ii) Explain the different types of advertising. | 7 |

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)
N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4060532

Semester: V Semester

Subject Title: TECHNICAL TEXTILES

TEACHING AND SCHEME OF EXAMINATION

No of weeks per semester: 16 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examinations	Total	
4060532 Technical Textiles	5 Hrs	80 Hrs	25	100*	100	3 Hrs.

* Examinations will be conducted for 100 marks and it will be reduced to 75 marks.

Topics and allocation

Sl. No	Topic	Time (hrs.)
1	INTRODUCTION	15
2	MEDICAL TEXTILES	15
3	GEO TEXTILES	15
4	FUNCTIONAL CLOTHING	14
5	TRANSPORTATION TEXTILES	14
6	TEST & REVISION	07
Total		80

RATIONALE

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

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

Objectives

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

4060532 TECHNICAL TEXTILE

DETAILED SYLLABUS

Unit	Name of the Topic	Hours
1	INTRODUCTION: Introduction to technical textiles – Definition – Difference between technical textiles and other textiles – classification of Technical textiles and applications (Industrial , Agriculture, Medical, Geo Textile, Transportation, Safety and sports) Types of fibres used and properties – Conventional and new fibres - Ultra fine, Micro fibres, Nano fibres, Hollow fibres, Aramid fibres, Carbon, Nomex, Kevlar and Glass fibres. Manufacturing methods of yarn and fabric – Braiding, Netting, Needle punching, Chemical bonding, 3D weaving and Composites	15
2	MEDICAL TEXTILES: Definitions – Classification of medical textiles – Applications characteristics of material used - Fibres used in Non-implantable materials like wound dressing, Bandage and gauze cloth. Fibres types and manufacturing methods used in implantable materials like vascular graft, sutures and heart valves. Fibre requirements for Extra corporeal devices such as skin, liver and kidney. Fibre requirements and finishing treatment adopted in healthcare and hygiene products such as surgical gowns, masks and wipes. Test methods: Bacterial filtration efficiency, Breathing resistance, Splash resistance, Knot pull strength	15
3	GEO TEXTILES Geo Textile: Definition and classification – Function of geo textiles (separation, Filtration , reinforcement, drainage and protection) Geo textile properties : physical, mechanical, hydraulic, environmental. Types of Geo textiles:- Brief study of Geo grids, Geo membranes - Woven and Non Woven geo textile products. Application of geo	15

	textiles – Road work, railway work, erosion control, Drainage systems. Test methods: Biological clogging, Tensile properties by strip method, water permeability, filtration efficiency and abrasion resistance	
4	FUNCTIONAL CLOTHING: Definition – classification – safety and Protective Clothing (Environmental hazard) – Fibres used, properties and application of High temperature clothing – flame protective clothing – chemical Protective Clothing – Electro Protective Clothing - High visibility clothing Defense clothing (Camouflage dress, Bullet proof, Non visibility clothing, tent and parachute) – Application and fibres uses in Sports wear – Water proof and water resistant, breathable laminate fabric.	14
5	TRANSPORTATION TEXTILES Introduction – Fibre requirement and applications seat belts, Air bags, seat cover. Applications, Fibres and Yarns used Conveyor and Transmission belt. Fibres and Yarns used in Tyre cords fabrics and their manufacturing process flow chart. Fibre and yarns used in industrial hoses, Textiles in car, Train, air craft and marine applications.	14

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

Board Examination-Question Paper Pattern

Subject: Technical Textiles

Note: Clarkes Table and Programmable Calculators are not permitted.

Relevant data should be provided in the question paper for solving the problems if any required.

Time: 3 Hrs.

Max.Marks:100

PART – A Five questions will be asked covering all units. All questions are to be answered. Each question carries 1 mark.

PART- B Fifteen questions will be asked covering all the units. Three questions from each unit. Answer any ten questions. Each question carries 2 marks.

PART-C Five questions will be asked Either or type. One question from every unit. Answer either A or B. Each question carries 15 marks. A and B have Subdivisions. (7 + 8)

The questions are to be numbered from 1 to 25. All the units are to be covered with equal weight age.

PART A Definitions and Statements. Question Number 1 to 5	5 X 1 = 5 Marks
PART B Short answer type questions Question Number 6 to 20	10 X 2 = 20 Marks
PART C Descriptive answer type questions (Either A or B) Question number 21 to 25	5 X15 = 75 Marks
TOTAL	100 Marks *

Note: Board Examinations will be conducted for 100 Marks and converted to 75 Marks.

MODEL QUESTION PAPER

Subject: Technical Textiles

Time: 3 Hrs.

Max. Marks: 100

PART A

Answer all the Questions

(5 x 1 = 5)

1. Define technical textile
2. Define medical textile
3. What is Geo grid?
4. What is protective cloth?
5. What is transport textile?

PART B

Answer any 10 Questions

(10x 2 = 20)

6. Differentiate technical textile and traditional textile
7. What are the essential properties of fibres used in technical textile?
8. What is microfibres?
9. Classify medical textiles
10. What is implantable medical products?
11. What are the test methods used for face masks and gown?
12. Define Geo-Textiles.
13. What are the advantages of Bio-degradable geo-textiles?
14. Give the details of the technical fibres used for geo -separation.
15. Differentiate water proof and water resistant fabric
16. What type of fibres are used in high temperature protective clothing?
17. Name the various layers used in bullet proof vest.
18. What type of fibres and weaves used in seat belt?
19. What are the important properties required for transportation belts?
20. Name few textile products used in air craft.

PART C

Answer all the Question, Choosing either A or B from each question (5 x 15 = 75)

- 21 A (i) Classify technical textiles and give any 3 products in each category. 8
(ii) Short note on i. Braiding process ii. 3D weaving 7
(OR)
B (i) Short note on i. Netting ii. 3Needle Punching 8
(ii) Explain in detail about fibres and manufacturing methods used in technical textiles 7
- 22 A (i) Explain in detail about constructional & test methods used for face masks 8
(ii) Explain in detail about fibres and manufacturing methods used in Non-implantable medical textiles 7
(OR)
B (i) Explain in detail about fibres and manufacturing methods used in implantable medical textiles 8
(ii) Explain the various test methods adopted in Medical Textiles. 7
- 23 A (i) Explain in detail about various functions of geo textiles. 8
(ii) Explain in detail the applications of geo-textiles. 7
(OR)
B (i) Short note on i. Geo grid ii. Geo products in filtration. 8
(ii) Explain the various test methods adopted in GeoTextiles. 7
- 24 A (i) Explain in detail about construction of flame protective clothing. 8
(ii) Explain in detail about construction of chemical protective clothing. 7
(OR)
B (i) Explain in detail about construction of bullet proof clothing 8
(ii) Explain in detail about construction of water proof and water resistant proof clothing 7
- 25 A (i) Explain in detail about fibre, yarn, fabric requirement of tyre cord fabrics. 8
(ii) Explain in detail about fibre, yarn, fabric requirement of air bags and seat cover. 7
(OR)
B (i) Short note on i. Industrial hoses ii. Fibre requirements in air craft. 8
(ii) Write about aircraft and marine applications of Technical Textiles. 7

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4067540

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
			Internal Assessment	Board Examination	Total	
4067540 Textile Testing Practical	4	64	25	100*	100	3 Hrs.

*** Examinations will be conducted for 100 marks and will be reduced to 75 marks.**

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 12 experiments given in the list of experiments should be completed and given for the end semester practical examination.
- In order to develop best skills in handling instruments / equipments and taking readings in the practical classes, every two students should be provided with a separate equipment set up for doing experiments in the laboratory.

- The external examiners are requested to ensure that a single experimental question should not be given to more than four students while admitting a batch of 30 students during Board Examinations.

QUESTION PAPER PATTERN & ALLOCATION OF MARKS

Single experiment is to be given per student

Experiment	50 marks
Write up / diagram / calculations	40 marks
Viva	10 marks
Total	100 Marks

Objectives

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

Fibre testing

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

Yarn Testing

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

Fabric testing

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

List of equipment:

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

Material required: - For a batch of 30 students.

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

Manual: Laboratory manual.

LIST OF EXPERIMENTS

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

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)
N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4067550

Semester: V Semester

Subject Title: TEXTILE WET PROCESSING PRACTICAL

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
4067550 Textile Wet Processing - Practical	4 Hrs	64 Hrs	Internal Assessment	Board Examination	Total	
			25	100*	100	3 Hrs

*** Examinations will be conducted for 100 marks and it will be reduced to 75 marks.**

RATIONALE:

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

OBJECTIVES:

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

Guidelines

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

LIST OF EQUIPMENTS REQUIRED: For a Batch of 30 Students

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

QUESTION PAPER PATTERN & ALLOCATION OF MARKS

Single experiment is to be given per student

Experiment	50 marks
Write up / diagram / calculations	40 marks
Viva - Voce	10 marks
 Total	 100 Marks

Contents: Practical

Name of the Topics:

Preparatory, Printing, Finishing, Testing of dyed fabrics

LIST OF EXPERIMENTS

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

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4067560

Semester: V Semester

Subject Title: WOVEN GARMENT CONSTRUCTION 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	
4066560 Woven Garment Construction Practical	5	60	25	100*	100	3 Hrs.

*** Examinations will be conducted for 100 marks and will be reduced to 75 marks.**

RATIONALE:

Garment construction is the assembling of parts of the garment. It is an art of making the garment. Various stitches, seams and accessories are used in the conversion of the individual parts into a final garment. This practical subject provides hands on experience on the method of constructing each and every part of the complex natured styles of garment into a final assembled product.

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 student should be provided with a separate sewing machine with attachments for creating garments 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

Garment construction	60 marks
Layout & construction, procedure	30 marks
Viva	10 marks
Total	100 Marks

OBJECTIVES:

Children's Wear

Cutting of parts of Pitch knicker, Zabla, Bloomer and Boy's shorts

Stitching of various parts of Pitch knicker, Zabla, Bloomer and Boy's Shorts

Women's wear

Cutting of parts of A-Line Frock, Yoke Frock, Umbrella Frock , Pinna Fore and Salwar

Stitching of various parts of A-Line Frock, Yoke Frock, Umbrella Frock, Pinna Fore and Salwar

Men's Wear

Cutting of parts of Half Sleeve shirt, Full sleeve shirt and Trouser

Stitching of various parts of Half Sleeve shirt, Full sleeve shirt and Trouser

LIST OF EQUIPMENT

Equipment / Machines required:

Sewing machines-

- Lock stitch- 15 m/cs.
- Over lock- 2 m/cs
- Flat lock- 1 m/c
- Button hole- 1 m/c
- Button stitch- 1 m/c
- 4- Needle trimmer*- 1 m/c
- Chain stitch*- 1 m/c
- Feed- off-arm* - 1 m/c
- Iron press- 1m/c

*Optional

Materials required:

1.5 – 2 meters of fabric/ expt. / batch of 30 students.

Sewing threads- white, assorted

LIST OF EXPERIMENTS

1. Using the paper pattern cut, stitch and finish the Garment - Pilch Knicker.
2. Using the paper pattern cut, stitch and finish the Garment – Zabala.
3. Using the paper pattern cut, stitch and finish the Garment – Bloomer.
4. Using the paper pattern cut, stitch and finish the Garment – A Line frock.
5. Using the paper pattern cut, stitch and finish the Garment – Yoke Frock.
6. Using the paper pattern cut, stitch and finish the Garment - Umbrella Frock.
7. Using the paper pattern cut, stitch and finish the Garment – Pinna fore.
8. Using the paper pattern cut, stitch and finish the Garment – Men's Half Sleeve Shirt
9. Using the paper pattern cut, stitch and finish the Garment – Men's Full Sleeve Shirt.
10. Using the paper pattern cut, stitch and finish the Garment – Men's Trouser
11. Using the paper pattern cut, stitch and finish the Garment – Boys Shorts.
12. Using the paper pattern cut, stitch and finish the Garment – Salwar

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4067570

Semester: V Semester

Subject Title: ENTREPRENEURSHIP AND STARTUPS 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	
4066570 Entrepreneurship and Start-up Practical	4	60	25	100*	100	3 Hrs.

* Examinations will be conducted for 100 marks and will be reduced to 75 marks.

Topics and Allocation of Hours

UNIT	Topic	Hours
I	Entrepreneurship – Introduction and Process	12
II	Business Idea and Banking	12
III	Start ups, E-cell and Success Stories	12
IV	Pricing and Cost Analysis	12
V	Business Plan Preparation	12
Revision		4
Total		60

RATIONALE:

Development of a diploma curriculum is a dynamic process responsive to the society and reflecting the needs and aspiration of its learners. Fast changing society deserves changes in educational curriculum particularly to establish relevance to emerging socio-economic environments; to ensure equity of opportunity and participation and finally promoting concern for excellence. In this context the course on entrepreneurship and startups aims at instilling and stimulating human urge for excellence by realizing individual potential for generating and putting to use the inputs, relevant to social prosperity and thereby ensure good means of living for every individual, provides jobs and develop Indian economy.

OBJECTIVE:

At the end of the study of 5th semester the students will be able to

- To excite the students about entrepreneurship
- Acquiring Entrepreneurial spirit and resourcefulness
- Understanding the concept and process of entrepreneurship
- Acquiring entrepreneurial quality, competency and motivation
- Learning the process and skills of creation and management of entrepreneurial venture
- Familiarization with various uses of human resource for earning dignified means of living
- Know its contribution in and role in the growth and development of individual and the nation
- Understand the formation of E-cell
- Survey and analyze the market to understand customer needs
- Understand the importance of generation of ideas and product selection
- Learn the preparation of project feasibility report
- Understand the importance of sales and turnover
- Familiarization of various financial and non-financial schemes
- Aware the concept of incubation and starts ups

4066570 ENTREPRENEURSHIP AND STARTUPS PRACTICAL
DETAILED SYLLABUS

Contents: Practical

Unit	Name of the Topics	Hours
1	Entrepreneurship – Introduction and Process ○ Concept, Functions and Importance ○ Myths about Entrepreneurship ○ Pros and Cons of Entrepreneurship ○ Process of Entrepreneurship ○ Benefits of Entrepreneur ○ Competencies and characteristics ○ Ethical Entrepreneurship ○ Entrepreneurial Values and Attitudes ○ Motivation ○ Creativity ○ Innovation ○ Entrepreneurs - as problem solvers ○ Mindset of an employee and an entrepreneur ○ Business Failure – causes and remedies ○ Role of Networking in entrepreneurship	12
2	Business Idea and Banking ○ Types of Business: Manufacturing, Trading and Services. ○ Stakeholders: sellers, vendors and consumers and Competitors ○ E- commerce Business Models ○ Types of Resources - Human, Capital and Entrepreneurial tools and resources ○ Selection and utilization of human resources and professionals, etc. ○ Goals of Business; Goal Setting ○ Patent, copyright and Intellectual property rights	12

	○ Negotiations - Importance and methods ○ Customer Relations and Vendor Management ○ Size and capital based classification of business enterprises ○ Various sources of Information ○ Role of financial institutions ○ Role of Government policy ○ Entrepreneurial support systems ○ Incentive schemes for state government ○ Incentive schemes for Central governments	
3	Startups, E-cell and Success Stories ○ Concept of Incubation centre's ○ Visit and report of DIC , financial institutions and other relevance institutions ○ Success stories of Indian and global business legends ○ Field Visit to MSME's ○ Study visit to Incubation centers and start ups ○ Learn to earn ○ Startup and its stages ○ Role of Technology – E-commerce and Social Media ○ Role of E-Cell ○ E-Cell to Entrepreneurship	12
4	Pricing and Cost Analysis ○ Unit of Sale, Unit Price and Unit Cost - for single product or service ○ Types of Costs - Start up, Variable and Fixed ○ Income Statement ○ Cash flow Projections ○ Break Even Analysis - for single product or service ○ Taxes ○ Financial Business Case Study ○ Understand the meaning and concept of the term Cash Inflow and Cash Outflow ○ Price	12

	○ Calculate Per Unit Cost of a single product ○ Operational Costs ○ Understand the importance and preparation of Income Statement ○ Prepare a Cash Flow Projection ○ Projections ○ Pricing and Factors affecting pricing. ○ Launch Strategies after pricing and proof of concept	
5	Business Plan Preparation ○ Generation of Ideas. ○ Business Ideas vs. Business Opportunities ○ Opportunity Assessment – Factors, Micro and Macro Market Environment ○ Selecting the Right Opportunity ○ Product selection ○ New product development and analysis ○ Feasibility Study Report – Technical analysis, financial analysis and commercial analysis ○ Market Research - Concept, Importance and Process ○ Market Sensing and Testing ○ Marketing and Sales strategy ○ Digital marketing ○ Branding - Business name, logo, tag line ○ Promotion strategy ○ Business Plan Preparation ○ Social Entrepreneurship as Problem ○ Solving - Concept and Importance ○ Risk Taking-Concept ○ Types of business risks ○ Execution of Business Plan	12

Note: (i) Unit 1, 2 & 3 contents are common for all diploma programs

(ii) Unit 4 & Unit 5 contents are optional; Conveners/HoDs are requested framing with their branch specific contents.

REFERENCE BOOKS:

1. Dr. G.K. Varshney, Fundamentals of Entrepreneurship, Sahitya Bhawan Publications, Agra - 282002
2. Dr. G.K. Varshney, Business Regulatory Framework, Sahitya Bhawan Publications, Agra - 282002
3. Robert D. Hisrich, Michael P. Peters, Dean A. Shepherd, Entrepreneurship, McGraw Hill (India) Private Limited, Noida - 201301
4. M.Scarborough, R.Cornwell, Essentials of Entrepreneurship and small business management, Pearson Education India, Noida - 201301
5. Charantimath Poornima M. Entrepreneurship Development and Small Business Enterprises, Pearson Education, Noida - 201301
6. Trott, Innovation Management and New Product Development, Pearson Education, Noida - 201301
7. M N Arora, A Textbook of Cost and Management Accounting, Vikas Publishing House Pvt. Ltd., New Delhi-110044
8. Prasanna Chandra, Financial Management, Tata McGraw Hill education private limited, New Delhi
9. I. V. Trivedi, Renu Jatana, Indian Banking System, RBSA Publishers, Rajasthan
10. Simon Daniel, HOW TO START A BUSINESS IN INDIA, BUUKS, Chennai - 600018
11. Ramani Sarada, The Business Plan Write-Up Simplified - A practitioners guide to writing the Business Plan, Notion Press Media Pvt. Ltd., Chennai 600095.

Board Examination – Evaluation Pattern

Internal Mark Allocation

Assignment (Theory portion) *	-	10
Seminar Presentation	-	10
Attendance	-	5
Total	-	25

Note: * Two assignments should be submitted. The same must be evaluated and converted to 10 marks.

Guidelines for assignment:

First assignment – Unit I

Second assignment – Unit II

Guidelines for Seminar Presentation – Unit III

Each assignment should have five three marks questions and two five marks questions.

BOARD EXAMINATION

Note

1. The students should be taught all units and proper exposure and field visit also arranged. All the portions should be completed before examinations.
2. The students should maintain theory assignment and seminar presentation. The assignment and seminar presentation should be submitted during the Board Practical Examinations.
3. The question paper consists of theory and practical portions. All students should write the answers for theory questions (40 Marks) and practical portions (60 Marks) should be completed for board examinations.
4. All exercises should be given in the question paper and students are allowed to select by lot. If required the dimensions of the exercises may be varied for every batch. No fixed time allotted for each portion and students have liberty to do the examination for 3Hrs.
5. For Written Examination: theory question and answer: 45 Marks
Ten questions will be asked for 3 marks each. Five questions from each unit 1 & 2. ($10 \times 3 = 30$).
Three questions will be asked for 5 marks each. One question from each unit 1, 2 & 3. ($3 \times 5 = 15$)
6. For Practical Examination: The business plan/Feasibility report or Report on Unit 4 & 5 should be submitted during the board practical examinations. The same have to be evaluated for the report submission (40 marks).

DETAILED ALLOCATION OF MARKS

Sl. No	Description	Marks
Part A	Written Examination - Theory Question and answer (10 questions x 3 marks:30 marks & (3 questions x 5 marks: 15 marks)	45
Part B	Practical Examination – Submission on Business Plan/Feasibility Report or Report on Unit 4 & 5	40
Part C	Viva voce	15
	Total	100

MODEL QUESTION PAPER
ENTREPRENEURSHIP AND START UPS

Part A

Time: 1-hour

Max. Marks: 45

- I. Answer ten questions in brief 10 x 3 = 30
1. Define entrepreneurship.
 2. State the process of entrepreneurship
 3. What are the benefits of being an entrepreneur?
 4. How do entrepreneurs act as problem solvers?
 5. Outline the role of networking in entrepreneurship.
 6. List the various types of business
 7. Outline the business model.
 8. Suggest the various goals of business.
 9. How selection of human resources is carried out?
 10. Specify the role of government policy on entrepreneurship.
- II. Answer three questions in details 3 x 5 = 15
11. Describe the importance of innovation on entrepreneurship.
 12. Enumerate the various incentive schemes for the central government.
 13. How technology will play a major role in E- commerce?

Part B

- III. Practical Examination – Submission on Business Plan / Feasibility Report or Report on Unit 4 & 5 40

Part C

- IV. Viva Voce 15

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)
N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4060610

Semester: VI Semester

Subject Title: TEXTILE MANAGEMENT

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	
4060610 Textile Management	5	80	25	100*	100	3 Hrs.

* Examinations will be conducted for 100 marks and will be reduced to 75 marks.

Topics and Allocation of Hours:

S. No	Topics	Hours
I	Introduction to Management, Site selection, Plant layout	15
II	Production and Financial Management	15
III	Human Resource Management	15
IV	Supervisory and Safety Management	14
V	Export Management	14
	Test & Revision	7
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.

4060610 TEXTILE MANAGEMENT

DETAILED SYLLABUS

Contents: Theory

Unit	Name of the Topic	Hours
I	INTRODUCTION TO MANAGEMENT, SITE SELECTION AND PLANT LAY OUTS Management – Definition, Functions and Principles. Organization structure of any Textile Unit. Selection of site - Various factors of site selection for various textile industries. Industrial Buildings – Types. Importance of Lighting, Ventilation and Humidification. Plant layout - Process, Product, Combination - their merits and demerits. Suitable Layout for Spinning, Weaving, Processing and Garment industries. Eco Management.	15
II	PRODUCTION AND FINANCIAL MANAGEMENT Production, Productivity, Labour Productivity Index (LPI) and Machine Productivity Index (MPI). Production Information System, Application of Work Study, Method Study, Time Study and Work Measurement in a Textile Mill. Material Handling – Importance, Various Equipment's used for Material Handling in a Textile Industry. Production Planning and Control (PPC) – Functions, Enterprise Resource Planning (ERP). Inventory control - Economic Order Quantity (EOQ), ABC and VED Analysis. Financial Management – Sources of Finance. Cost – Elements, Techniques of Costing, System of Costing - Method of Calculating Ex -Mill Price. Break Even Analysis. Depreciation.	15
III	HUMAN RESOURCE MANAGEMENT HRM – Importance. Man Power Planning, Job Analysis and Job Evaluation. Recruitment – Sources, Selection Process in Recruitment. Training – Importance and types of Training Process. Wages – Its Components. Method of Wage Payment. Incentives – Types, Merits and Demerits. Labour Welfare Activities – Role of Labour Welfare Officer. Labour grievances - Causes Grievance Redressal procedures.	15

IV	SUPERVISORY AND SAFETY MANAGEMENT Supervisor – Role, Leadership – Role, Difference Between Leader and Manager. Transformational Leadership. Motivation - Need, Importance and Types of motivation - Maslow's theory, XYZ theory in motivation. Communication- Principle of effective communication - types of communication - barriers of communication. Labour welfare activities with respect to factories act. Industrial safety- Causes of accidents, preventive measures. Guards and safety devices in textile mill. Types of fire and fire prevention. Application of 5 S and Kaizen principles for effective supervision.	14
V	EXPORT MANAGEMENT Importance and benefits of international marketing. World Trade Organization (WTO) – functions of WTO. Various export promotion measures by government of India. Functions of TEXPROCIL, AEPC, PEDEXIL, HEPC and Textile committee. Export procedure - Export incentives. Importance of Shipping bill and bill of lading. Export finance – pre shipment finance and post shipment finance. Letter of Credit. Export pricing-Ex factory, Free On Truck (FOT), Free On Board (FOB), Cost & Freight(C&F), Cost Insurance Freight (CIF) and Franco pricing. Brief Idea about Management Information System (MIS), Just In Time (JIT) and Total Quality Management (TQM).	14

TEXT BOOKS:

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

REFERENCE:

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

Board Examination-Question Paper Pattern

For Textile Management

Note: Clarkes Table and Programmable Calculators are not permitted.

Relevant data should be provided in the question paper for solving the problems if any required.

Time: 3 Hrs.

Max.Marks:100

PART – A Five questions will be asked covering all units. All questions are to be answered. Each question carries 1 mark.

PART- B Fifteen questions will be asked covering all the units. Three questions from each unit. Answer any ten questions. Each question carries 2 marks.

PART-C Five questions will be asked Either or type. One question from every unit. Answer either A or B. Each question carries 15 marks. A and B have Subdivisions. (7 + 8)

The questions are to be numbered from 1 to 25. All the units are to be covered with equal weight age.

PART A Definitions and Statements. Question Number 1 to 5	5 X 1 = 5 Marks
PART B Short answer type questions Question Number 6 to 20	10 X 2 = 20 Marks
PART C Descriptive answer type questions (Either A or B) Question number 21 to 25	5 X15 = 75 Marks
TOTAL	100 Marks *

Note: Board Examinations will be conducted for 100 Marks and converted to 75 Marks.

MODEL QUESTION PAPER

Subject: Textile Management

Time: 3 Hrs.

Max. Marks: 100

PART A

Answer all the Questions

(5 x 1 = 5)

1. Define Management
2. Define Labour Productive Index.
3. What is Job Analysis?
4. Define Motivation.
5. Expand WTO.

PART B

Answer any 10 Questions

(10x 2 = 20)

6. What are the functions of management?
7. Give the importance of Lighting in a textile industry.
8. Write a note on control of air pollution in a textile industry.
9. Give the objectives of Method Study.
10. Give the functions of PPC.
11. Give the elements of cost.
12. Define Recruitment.
13. Give the components of wages.
14. What do you mean by grievances?
15. List the importance of Motivation.
16. List the types of communication.
17. What are safety guards?
18. Write a note on export promotion councils.
19. What do you mean by Globalization?
20. Write a note on TQM.

PART C

Answer all the Question, Choosing either A or B from each question (5 x 15 = 75)

- 21 A (i) Write in detail about the types of organization structures 8
(ii) How will you select site for textile industry? Justify your selection 7
(OR)
- B (i) Write in detail with sketch, the various types of buildings used in textile industry and its importance 8
(ii) Give an account of different types of plant layouts and their merits and demerits 7
- 22 A (i) Discuss the importance of material handling in textile industry 8
(ii) Write in detail about Elements of cost and explain how the Ex-mill price of cloth is calculated. 7
(OR)
- B (i) Explain in detail about Break Even Analysis with the chart. 8
(ii) Write in detail about Production Planning and Control 7
- 23 A (i) Write in detail about employee selection procedure for an industry 8
(ii) Give an account of Training Procedures 7
(OR)
- B (i) Write about wages and its components, systems of wage payments 8
(ii) Explain in detail causes of Grievances and Grievance Redressal procedure 7
- 24 A (i) Explain in detail the Motivation and various theories of Communication 8
(ii) Give the various safety guards and devices used in textile industry 7
(OR)
- B (i) Write in detail about industrial accidents, its causes and prevention steps adopted in industry 8
(ii) Write a note on 5s and Kaizen principle with advantages 7
- 25 A (i) Discuss the functions of various export promotion council's 8
(ii) Give the various export procedures to be followed and Export Documents 7
(OR)
- B (i) Write in detail about Export Price Composition 8
(ii) Write in detail about (i) TQM (ii) MIS 7

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)
N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4066620

Semester: VI Semester

Subject Title: APPAREL QUALITY CONTROL

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	
4066620 Apparel Quality Control	5	80	25	100*	100	3 Hrs.

* Examinations will be conducted for 100 marks and will be reduced to 75 marks.

Topics and Allocation of Hours:

S. No	Topics	Hours
I	Inspection methods & Packing	15
II	Testing of Garments	15
III	Care label and Garment defects	15
IV	Garment Industry Certification	14
V	Sustainable clothing	14
	Test & Revision	7
Total		80

RATIONALE:

The demand and repeat orders are obtained only when the quality of the products are maintained. The industries concentrate more on their product quality and a separate wing operates for achieving the quality. Any negligence in product quality leads to heavy loss particularly in export orders. This subject deals with the quality measurement, assurance of the raw material, in process and final products and the various tests that are being carried out with respect to garment products. The care labelling and certification part is also included.

OBJECTIVES:

At the end of the study of VI Semester the student will be able to

- Understand the inspection methods.
- Learn the sampling procedure and quality audit.
- Understand the various testing procedures to produce quality woven garments.
- Learn the various testing procedures to produce quality knitted garments.
- Learn the various packing accessories in garment industries
- Understand the packing procedure
- Learn the different types of care labeling systems.
- Learn the various defects in garments and analyzing the reasons for them.
- Learn the quality control programs
- Understand the concept of TQM, ISO 9000, WRAP, SA 8000 & BCI
- Learn the sustainable clothing principles and importance

4066620 APPAREL QUALITY CONTROL

DETAILED SYLLABUS

Contents: Theory

Unit	Name of the Topic	Hours
I	INSPECTION METHODS & PACKING Quality control - Definition - Importance of quality – Inspection process - Raw Material Inspection - Fabric Inspection - 4-point System - 10-point System - Inspection of Sewing Thread. In process Inspection – Final Inspection –AQL Inspection. Classification of Packing and its importance - Stand up pack - Flat pack - Hanger pack - Dead man pack – Sandwich pack – Ratio pack, Size wise pack, Color wise pack, Assorted pack and Un-assorted pack - Brief study of Packing materials.	15
II	TESTING OF GARMENTS Seam strength Testing - Testing of Fabric Stretch properties - Dimensional changes due to Laundering, Dry cleaning and Steaming & Pressing - Durable Press Evaluation of Fabrics and Apparel - Needle cutting / yarn severance - Sew ability of fabrics - Bow and Skewness in Woven and Knitted fabrics - Distortion of yarn in Woven Fabrics – Testing of Water Resistance and Water Repellency – Testing for Soil / Stain releasing - Testing of Fusible Interlinings and Elastic Waist Band - Pantyhose Testing - Wear Testing.	15
III	CARE LABELING & GARMENT DEFECTS. Introduction to Care labels - its importance - Different systems of Care labeling - American - British - Canadian - Japanese - and International labeling. Shade sorting - Introduction - importance Instrumental shade sorting. Flammability - Introduction - Degree Flammability Test method - 45 and Vertical Flammability Tests. Defects in garments – Classification of major, minor and critical defects, pattern defects, spreading defects, cutting defects, stitching defects and seam defects.	15
IV	GARMENT INDUSTRY CERTIFICATION Quality Control Program - Seven tools of quality controls – Product quality audit. Garment Industry certification – Importance of social compliance –	14

	TQM - Procedure of obtaining ISO 9000 series standards - WRAP Certification & Procedures – SA 8000 certification – Eco label certification - GOTS certificate – Oekotex standard100 – Better cotton Initiative (BCI).	
V	SUSTAINABLE CLOTHING Sustainable clothing - Definition - Fashion industry and garment consumption – Principles of environmental design – Guidelines for sustainable design – Definition of Redesign & Recycle – Up cycling – Down cycling – Principle of cradle to cradle. Material for sustainable design – Life cycle assessment (LCA). Shifts in Textile Industry – Fibre shift – Manufacturing shift – Technology shift – Consumption shift – Environment shift – Implementation of shifts on future strategies of textile.	14

Text Book:

Title	Author	Publisher	Year
An Introduction to Quality control for The Apparel Industry	Pradip V Mehta	ASQC Quality press. New York.	2002
Managing Quality in the Apparel Industry	Pradip V Mehta Satish k Bhardwaj	New Age International Publishers	1998

Reference:

Title	Author	Publisher	Year
ISO 9000 Series Manual	-	New Delhi.	2019
Knitted clothing Technology	Terry Brackenbary	Black well science Ltd	1996
Sustainable Fashion	Kirsi Niinimäki	Aalto University Publications Series,	2013
The Big shift	-	Wazir Advisors Pvt. Ltd.	2018

Board Examination-Question Paper Pattern

For Apparel Quality Control

Note: Clarkes Table and Programmable Calculators are not permitted.

Relevant data should be provided in the question paper for solving the problems if any required.

Time: 3 Hrs.

Max.Marks:100

PART – A Five questions will be asked covering all units. All questions are to be answered. Each question carries 1 mark.

PART- B Fifteen questions will be asked covering all the units. Three questions from each unit. Answer any ten questions. Each question carries 2 marks.

PART-C Five questions will be asked Either or type. One question from every unit. Answer either A or B. Each question carries 15 marks. A and B have Subdivisions. (7 + 8)

The questions are to be numbered from 1 to 25. All the units are to be covered with equal weight age.

PART A Definitions and Statements. Question Number 1 to 5	5 X 1 = 5 Marks
PART B Short answer type questions Question Number 6 to 20	10 X 2 = 20 Marks
PART C Descriptive answer type questions (Either A or B) Question number 21 to 25	5 X15 = 75 Marks
TOTAL	100 Marks *

Note: Board Examinations will be conducted for 100 Marks and converted to 75 Marks.

MODEL QUESTION PAPER

Subject: Apparel Quality Control

Time: 3 Hrs.

Max. Marks: 100

PART A

Answer all the Questions

(5 x 1 = 5)

1. Define – quality control.
2. What is formula for needle cut index?
3. Draw the internal care label symbol.
4. Expand -TQM.
5. What is sustainable clothing?

PART B

Answer any 10 Questions

(10x 2 = 20)

6. What is the importance of quality?
7. What is the importance of in-process inspection?
8. What is final inspection?
9. What are the factors affecting seam strength?
10. What is bow in fabric?
11. What you mean by distortion of yarn?
12. Why you need wash care?
13. Mention the degree of flammability.
14. List the cutting defects.
15. Why you need garment certification?
16. List the ISO 9000 series.
17. What is expansion of WRAP?
18. What is redesigning?
19. What you mean by upcycling?
20. What you mean by cradle to cradle?

PART C

Answer all the Question, Choosing either A or B from each question (5 x 15 = 75)

- | | | | |
|----|---|--|---|
| 21 | A | (i) Explain in detail about the sewing thread inspection. | 8 |
| | | (ii) Explain in detail about 4-point fabric inspection system. | 7 |
| | | (OR) | |
| | B | (i) Explain in detail about AQL inspection system. | 8 |
| | | (ii) Explain in detail about the stand-up packing. | 7 |
| 22 | A | (i) Describe in detail about the dimensional change in fabric. | 8 |
| | | (ii) Write notes on sew-ability of fabrics. | 7 |
| | | (OR) | |
| | B | (i) Explain in detail about the Elastic waist band testing. | 8 |
| | | (ii) Write notes on wear test. | 7 |
| 23 | A | (i) Describe in detail about the importance of instrumental shade sorting. | 8 |
| | | (ii) Write notes on American wash acre system. | 7 |
| | | (OR) | |
| | B | (i) Explain the working of 45 Degree flammability test. | 8 |
| | | (ii) Write notes on classification garment defects. | 7 |
| 24 | A | (i) Explain the procedure to get WRAP certification. | 8 |
| | | (ii) Write the procedure for obtaining ISO certification. | 7 |
| | | (OR) | |
| | B | (i) Write notes on GOTS certificate. | 8 |
| | | (ii) Write notes on BCI. | 7 |
| 25 | A | (i) Explain the principles of environmental design. | 8 |
| | | (ii) Explain briefly about the consumption of garment in world market. | 7 |
| | | (OR) | |
| | B | (i) Explain the implementation of technological shift in sustainable clothing. | 8 |
| | | (ii) Write notes on major shifts in clothing industry. | 7 |

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)
N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4067631

Semester: VI Semester

Subject Title: KNITTED GARMENT CONSTRUCTION

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	
4067631 Knitted Garment Construction	5	80	25	100*	100	3 Hrs.

* Examinations will be conducted for 100 marks and will be reduced to 75 marks.

Topics and Allocation of Hours:

S. No	Topics	Hours
I	Knitted Garment -Types	15
II	Knitted Garments Spreading	15
III	Knitted Garments Marker Planning and Cutting	15
IV	Machinery for Seaming Knitted Garments	14
V	Pattern Drafting for Knitted Garments	14
	Test & Revision	7
Total		80

RATIONALE:

Knitting is one of the most important processes for producing fabrics. This technique is used to produce garments that cover every part of human body, in a wide range of garment types from socks, caps, gloves and underwear to upper and lower body garments varying from T-shirt to formal jackets. This subjects provides a base for understanding the uniqueness and features of garments made from knitted fabrics and the various process and machinery required to create a Knitted Garments.

OBJECTIVES:

At the end of the study of VI Semester the student will be able to

To learn the various types of knitted garment construction method

- To learn the production sequence of various knitted garment construction methods
- To learn the spreading of knitted fabrics
- To learn the spreading methods
- To learn the marker and marker planning methods
- To learn the cutting and its equipments and methods of cutting
- To learn the types of knitted garment seaming machineries
- To learn the timing diagram of knitted garment seaming machineries
- To learn the pattern making for knitted garments (men's & women's)
- To learn the knitted garment constructions

4067631 KNITTED GARMENT CONSTRUCTION

DETAILED SYLLABUS

Contents: Theory

Unit	Name of the Topic	Hours
I	KNITTED GARMENT - TYPES KNITTED GARMENTS – Classification - Fully Cut Garments – Description – Production - Production Sequence - Cut Stitch Shaped – Description – Production - Production Sequence - Fully fashioned Garments – Shapes – Shape Generation (Detailed Study) - Production Sequence - Integral garments – Basic Techniques (Course shaping, Wale Shaping, Tubular Knitting, Running – on, Change of Stitch type and Casting off) – Brief Description about each technique – Production Sequence – Brief description about any two Integral garments production.	15
II	KNITTED GARMENTS SPREADING SPREADING – Introduction - Requirement of the spreading process - shade sorting of cloth pieces-correct ply direction and adequate lay stability -alignment of plies-types of spread – correct ply tension - elimination of fabric faults -elimination of static electricity - distortion and fusion - methods of spreading - hand spreading - machine spreading - spreading of knitted garments - Precautions for knitted fabric spreading, The effect of spirality in knitted fabric spreading	15
III	KNITTED GARMENTS - MARKER PLANNING AND CUTTING Marker planning - requirements of marker planning – factors influencing when planning the marker (nature of the fabric, pattern alignment, symmetry and asymmetry design characteristics) - requirements of quality in cutting- marker efficiency - Methods of marker planning - manual marker planning methods computerized marker planning - Cutting – objectives – methods of cutting - cutting equipment- hand shear - straight knife- round knife - band knife - notchers - drills and thread markers - modern cutting methods - die cutting – laser cutting - computerized cutting.	15

IV	MACHINERY FOR SEAMING KNITTED GARMENTS Knitted garment seaming - supporting the work (bed types – flat bed, cylinder arm, off the arm - overedge) – advancing the work – differential drop feed (feeding foot, feed rollers and top feed, front and rear) – Stitch formation (timing diagrams and working) – lockstitch – overlock machinery – chaining action of three thread overlock – linking machine – cup seamer - Double chain stitch machine and deskillers linkers.	14
V	PATTERN DRAFTING FOR KNITTED GARMENTS Designing & pattern making for Men's T-shirt with half – sleeve - Designing & pattern making for Men's T-shirt with raglan – sleeve - pattern making for Women's Knitted Top - designing & pattern making for Women's Knitted Skirts - pattern making for Women's Singlets - designing and pattern making for Men's shorts - designing and pattern making for Men's vest – construction methods of all above styles.	14

Text Book:

Title	Author	Publisher	Year
Knitting Technology	David J Spencer	Woodhead Publishing Limited	2001
Knitted Clothing Technology	Terry Brackenbury	Blackwell Publishing	2005
Dress making Simplified	Valerie cock	Blackwell Scientific	1993

Reference:

Title	Author	Publisher	Year
Technology of Clothing Manufacture	Carr & Lathem	Blackwell Sci.Pub New York	2004
Introduction to Clothing Manufacture	Gerry Cooklin	Blackwell Sci.Pub New York	2005

Board Examination-Question Paper Pattern

For Knitted Garment Construction

Note: Clarkes Table and Programmable Calculators are not permitted.

Relevant data should be provided in the question paper for solving the problems if any required.

Time: 3 Hrs.

Max.Marks:100

PART – A Five questions will be asked covering all units. All questions are to be answered. Each question carries 1 mark.

PART- B Fifteen questions will be asked covering all the units. Three questions from each unit. Answer any ten questions. Each question carries 2 marks.

PART-C Five questions will be asked Either or type. One question from every unit. Answer either A or B. Each question carries 15 marks. A and B have Subdivisions. (7 + 8)

The questions are to be numbered from 1 to 25. All the units are to be covered with equal weight age.

PART A Definitions and Statements. Question Number 1 to 5	5 X 1 = 5 Marks
PART B Short answer type questions Question Number 6 to 20	10 X 2 = 20 Marks
PART C Descriptive answer type questions (Either A or B) Question number 21 to 25	5 X15 = 75 Marks
TOTAL	100 Marks *

Note: Board Examinations will be conducted for 100 Marks and converted to 75 Marks.

MODEL QUESTION PAPER

Subject: Knitted Garment Construction

Time: 3 Hrs.

Max. Marks: 100

PART A

Answer all the Questions

(5 x 1 = 5)

1. What do you mean by fully cut garments?
2. List the types of spreading.
3. List two cutting machines used to cut knitted fabrics.
4. What is the use of cup seamer?
5. Give a sample measurement for Men's Vest.

PART B

Answer any 10 Questions

(10x 2 = 20)

6. What do you mean by fully fashioned garment?
7. List the techniques of producing integral garments.
8. List the disadvantages of fully cut garments.
9. How do you eliminate the static electricity?
10. What are the precautions to be carried out while spreading knitted garments?
11. What do you mean by spreading?
12. List the cutting objectives.
13. What do you mean by marker planning?
14. Write short notes on die cutting.
15. List the various elements supporting the work.
16. List the various elements advancing the work.
17. Write short note on deskilled linkers.
18. Give suitable measurements for an L Size Men's T-Shirt with half sleeve.
19. Give suitable measurements for an M Size Men's T-Shirt with raglan sleeve.
20. Give suitable measurements for an S Size Women's Knitted Top.

Answer all the Question, Choosing either A or B from each question (5 x 15 = 75)

- | | | | |
|----|---|--|---|
| 21 | A | (i) Give the production sequence of the fully cut garments and explain. | 8 |
| | | (ii) Give the production sequence of the Stitch-shaped garments and explain. | 7 |
| | | (OR) | |
| | B | (i) Explain in detail about Integral garments production. | 8 |
| | | (ii) Explain in detail about the fully fashioned garments shape generation technique. | 7 |
| 22 | A | (i) Explain in detail the machine spreading process for knitted garments. | 8 |
| | | (ii) Write short notes on spirality and how to avoid it during spreading process. | 7 |
| | | (OR) | |
| | B | (i) Explain in detail the requirements of spreading process. | 8 |
| | | (ii) Explain in detail about hand spreading process. | 7 |
| 23 | A | (i) Write notes on requirements of marker planning. | 8 |
| | | (ii) Write notes on the working principles of straight knife and band knife. | 7 |
| | | (OR) | |
| | B | (i) Explain the computerized cutting machine. | 8 |
| | | (ii) Write notes on computerized marker planning. | 7 |
| 24 | A | (i) Write notes on differential drop feed mechanism. | 8 |
| | | (ii) Write notes on the chaining action of three thread overlocking machine. | 7 |
| | | (OR) | |
| | B | (i) Explain the working principles of Double Chain Stitch machine. | 8 |
| | | (ii) Explain the lock stitch machine timing diagram.. | 7 |
| 25 | A | (i) With a neat sketch explain the drafting procedure of a Men's Knitted Shorts with suitable measurements for L Size. | 8 |
| | | (ii) With a neat sketch explain the drafting procedure of a Men's Knitted shirt with raglan sleeve with suitable measurements for XL Size. | 7 |
| | | (OR) | |
| | B | (i) With a neat sketch explain the drafting procedure of a Women's Knitted Skirt with suitable measurements for L Size. | 8 |
| | | (ii) With a neat sketch explain the drafting procedure of a Women's Singlets with suitable measurements for M Size. | 7 |

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)
N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4066632

Semester: VI Semester

Subject Title: FASHION DRAPING

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	
4066632 Fashion Draping	5	80	25	100*	100	3 Hrs.

* Examinations will be conducted for 100 marks and will be reduced to 75 marks.

Topics and Allocation of Hours:

S. No	Topics	Hours
I	Introduction to Draping	15
II	Draping of Bodice block and Variations	15
III	Draping of Yoke, Sleeves & Collars	15
IV	Draping of Slacks & Skirts	14
V	Draping of advanced design variations & Knit Garments	14
	Test & Revision	7
Total		80

RATIONALE:

Draping is an art of wrapping the dress materials on the body. The same technique is extended to produce required patterns of basic and complicated styles of garment. This subject deals with the preparation of patterns of various parts of the garment without drawing tools, measurements but with the aid of relevant dummy or mannequin.

OBJECTIVES:

At the end of the study of VI Semester the student will be able to

- Understand the Draping tools & Procedure.
- Learn about draping of basic bodice& sleeves
- Understand the draping of Bodice blocks & its variations.
- Learn about introduction of varies fullness.
- Understand the draping of Skirts
- Understand the draping of Slacks.
- Learn the draping of Yokes & collars
- Understand the draping of sleeves.
- Understand the draping of advanced design variations.
- Learn the draping of knit garments.

4066632 FASHION DRAPING

DETAILED SYLLABUS

Contents: Theory

Unit	Name of the Topic	Hours
I	INTRODUCTION TO DRAPING Definition of Draping – Draping Tools & Equipments – Draping principles – Preparation of muslin for Draping – Seam allowance – Preparation of Dress form for Draping. Draping of Basic Bodice front – Preparation of muslin – Draping steps – Marking – Truing - Draping of Basic Bodice Back – Draping of Basic Sleeve – Draping of Basic Skirt.	15
II	DRAPING OF BODICE BLOCKS & VARIATIONS Front Bodice with under arm Dart – Back Bodice with Neckline Dart – Dart manipulation – Waist line Dart – Dart at waistline and centre front – French Dart – Double French Dart – Flange Dart – Neckline Dart – Neckline variations – Front & Back Armhole variations – Typical sleeveless – Squared – Cutaway Waist line variation – lowered – Empire – Shortened – Scalloped – Pointed. The Princes Bodice – Cowls – front – Under arm cowl – Wrapped neckline cowl. Twists – Butterfly Twist – Neck yoke twist – Bust twist.	15
III	DRAPING OF YOKES, SLEEVES & COLLARS Draping of fitted midriff Yoke — Shirt yoke – Hip Yoke. Draping of – Mandarin Collar – Convertible collar – Peterpan collar. Draping of Basic Dolman sleeve – Long fitted Dolman sleeve — Reglan sleeve – Kimono sleeve with a gusset.	15
IV	DRAPING OF SKIRTS & SLACKS Draping of one piece basic skirt – Gored skirt – Flared skirt – Pleats in the flared skirt – Gathers in the flared skirt – Pleated skirt – Side & Box pleated skirt – Kick pleated and inverted pleated skirt – Divided skirt. Draping of basic straight slacks – Fitted slacks – Tapered slacks – Pegged slacks.	14

V	DRAPING OF ADVANCED DESIGN VARIATIONS & KNIT GARMENTS Draping of bias – Cut slip Dress – Bustier Designs – basic Knit Bodice Dress – Knit Halter - Knit Leotard - Knit Panties - Draping of peplums. Draping of ‘A’ line shift – Draping of Princess Dress – Draping of Basic Jacket. Draping of Flounces – Circular flounce – Shirred Flounce – Draping of Ruffles – Variable Ruffle finishes.	14
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Text Book:

Title	Author	Publisher	Year
The Art of Fashion Draping	Connie Amaden Crawford	Fair Child Publication, New York Om Books International, New Delhi	2005
Draping for Fashion Design	Hilde Jaffe & Nurie Relis	Prentice Hall career & Technology, Englewood Cliffs, USA	2002

Reference:

Title	Author	Publisher	Year
Draping for Fashion Design	Hilde Jaffe & Nurie Relis	Dorling Kindersley India Pvt Ltd., New Delhi- 110092	2009

Board Examination-Question Paper Pattern

Subject: Fashion Draping

Note: Clarkes Table and Programmable Calculators are not permitted.

Relevant data should be provided in the question paper for solving the problems if any required.

Time: 3 Hrs.

Max.Marks:100

PART – A Five questions will be asked covering all units. All questions are to be answered. Each question carries 1 mark.

PART- B Fifteen questions will be asked covering all the units. Three questions from each unit. Answer any ten questions. Each question carries 2 marks.

PART-C Five questions will be asked Either or type. One question from every unit. Answer either A or B. Each question carries 15 marks. A and B have Subdivisions. (7 + 8)

The questions are to be numbered from 1 to 25. All the units are to be covered with equal weight age.

PART A Definitions and Statements. Question Number 1 to 5	5 X 1 = 5 Marks
PART B Short answer type questions Question Number 6 to 20	10 X 2 = 20 Marks
PART C Descriptive answer type questions (Either A or B) Question number 21 to 25	5 X15 = 75 Marks
TOTAL	100 Marks *

Note: Board Examinations will be conducted for 100 Marks and converted to 75 Marks.

MODEL QUESTION PAPER

Subject: Fashion Draping

Time: 3 Hrs.

Max. Marks: 100

PART A

Answer all the Questions

(5 x 1 = 5)

1. What is Truing?
2. What is cutaway?
3. What is convertible collar?
4. What is draping?
5. What is knit halter?

PART B

Answer any 10 Questions

(10x 2 = 20)

6. What is marking?
7. Mention the tools for draping.
8. How seam allowance introduced in draping?
9. What is dart manipulation?
10. What is the purpose of flange dart?
11. What is cowl?
12. What is the purpose of yoke?
13. What is dolman sleeve?
14. Compare raglan sleeve and kimono sleeve.
15. What you mean by slack?
16. What is gored skirt?
17. How pleats are introduced by draping?
18. What is cut slip dress?
19. What is A Line shift?
20. What is peplum?

PART C

Answer all the Question, Choosing either A or B from each question (5 x 15 = 75)

- | | | | |
|----|---|--|---|
| 21 | A | (i) Explain the principles of draping. | 8 |
| | | (ii) Explain the preparation of dress forms. | 7 |
| | | (OR) | |
| | B | (i) Explain in detail about the draping of basic bodice front. | 8 |
| | | (ii) Explain in detail about the draping of basic skirt. | 7 |
| 22 | A | (i) Explain the types of waist line variations. | 8 |
| | | (ii) Explain the draping butterfly twist. | 7 |
| | | (OR) | |
| | B | (i) Explain the draping of under arm cowl. | 8 |
| | | (ii) Explain the draping of neck line variations. | 7 |
| 23 | A | (i) Explain the draping of midriff yoke. | 8 |
| | | (ii) Explain the draping of peter-pan collar. | 7 |
| | | (OR) | |
| | B | (i) Explain the draping of mandarin collar. | 8 |
| | | (ii) Explain the draping of shirt yoke. | 7 |
| 24 | A | (i) Explain the draping of flared skirt. | 8 |
| | | (ii) Explain the draping of fitted slack. | 7 |
| | | (OR) | |
| | B | (i) Explain the draping of divided skirt. | 8 |
| | | (ii) Explain the draping of tapered slack. | 7 |
| 25 | A | (i) Explain the draping of knit leotard. | 8 |
| | | (ii) Explain the draping of circular flounces. | 7 |
| | | (OR) | |
| | B | (i) Explain the draping of princess dress. | 8 |
| | | (ii) Explain the draping of jacket. | 7 |

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)
M-SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4067640

Semester: VI Semester

Subject Title: KNITTED GARMENT CONSTRUCTION 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	
4067640 Advanced Pattern Drafting and Construction Practical	6	96	25	100*	100	3 Hrs.

*** Examinations will be conducted for 100 marks and will be reduced to 75 marks.**

RATIONALE:

The treatment of fabric to produce various and the properties of the garments produced have a great deal in common. This common theme is connected with the knitted fabric property of extensibility. This is in contrast to the general rigidity of most woven fabrics. The industries dealing with production of knitted garments remain separate from those dealing with woven garments. Hence hands on experience will help the students to acquire the skill, knowledge in pattern preparation and construction of garments with special reference to knitted fabrics.

GUIDELINES:

- All the twelve 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 student should be provided with a cutting and sewing machine for creating patterns and stitching of various parts 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

Pattern preparation / Garment construction	60 marks
Write up	30 marks
Viva	10 marks
Total	100 Marks

OBJECTIVES:

Pattern Preparation / Construction of Knitted Garments

MEN'S T – SHIRT – ROUND NECK/V-NECK and POLO

To prepare pattern for Men's T-shirt, using the given measurement with half sleeve, full sleeve and Raglan sleeve.

To construct Men's T-shirt, using the paper pattern of the following.

(1) Half sleeve (2) Full sleeve (3) Raglan sleeve.

MEN'S TRACK SUIT

To prepare pattern for Men's Track suit, using the given measurement. To construct Men's Track suit, using the given paper pattern.

WOMEN'S TOPS

To prepare pattern for Women's Tops, using the given measurement for different types of neck and sleeve arrangement.

To construct women's Tops, using the given paper pattern.

WOMEN'S SKIRT

To prepare pattern for Women's Skirt, using the given measurement for different types of neck and sleeve arrangement.

To construct women's Skirt using the given paper pattern.

WOMEN'S SINGLETS

To prepare pattern for Women's Singlet, using the given measurement.

To construct Men's and Women's Singlet, using the given paper pattern.

MEN'S VEST

To prepare pattern for Men's Vest using the given measurement. To construct Men's Vest, using the given paper pattern.

MEN'S SWEAT SHIRT

To prepare pattern for Men's Sweat Shirt using the given measurement. To construct Men's Sweat Shirt using the given paper pattern.

MEN'S HOODIE WITH DRAW STRING

To prepare pattern for Men's HOODIE using the given measurement. To construct Men's HOODIE using the given paper pattern.

LIST OF EQUIPMENT

Equipment required:

- Pattern table - 8'x4' table - 4 nos.
- Sewing Machines – 6 Nos

Materials required:

- Pattern paper - 30 no / experiment / batch of 30 students
- Measuring, drafting & cutting tools - 30/ batch of 30 students

LIST OF EXPERIMENTS

1. Using the paper pattern cut, stitch and finish the Garment - Knitted Men's Polo T-shirt with half sleeve.
2. Using the paper pattern cut, stitch and finish the Garment – Knitted Men's Polo T-shirt with Full sleeve
3. Using the paper pattern cut, stitch and finish the Garment – Knitted Men's Round Neck T-shirt
4. Using the paper pattern cut, stitch and finish the Garment – Knitted Men's V-Neck T-shirt
5. Using the paper pattern cut, stitch and finish the Garment – Knitted Men's T-Shirt with Raglan Sleeve
6. Using the paper pattern cut, stitch and finish the Garment - Women's Singlets
7. Using the paper pattern cut, stitch and finish the Garment – Men's Vest
8. Using the paper pattern cut, stitch and finish the Garment – Women's Knitted Skirt
9. Using the paper pattern cut, stitch and finish the Garment - Men's hoodie with draw string
10. Using the paper pattern cut, stitch and finish the Garment – Knitted Men's Track suit
11. Using the paper pattern cut, stitch and finish the Garment – Knitted Women's Top
12. Using the paper pattern cut, stitch and finish the Garment – Knitted Men's Sweat Shirt

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4067650

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
			Internal Assessment	Board Examination	Total	
4067650 Garment CAD Practical	5	80	25	100*	100	3 Hrs.

*** Examinations will be conducted for 100 marks and will be reduced to 75 marks.**

RATIONALE:

Computer Aided Designing assumes a great importance in the Internet Era. Creating patterns using PDS helps in improving the productivity in the Industry. In addition to the manual pattern drafting and grading process creating patterns using PDS will enrich the knowledge and hands on experience. This practical is helpful in drawing patterns and grading patterns using CAD Software

GUIDELINES:

- All the twelve 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 student should be provided with a separate computer system with Garment CAD Software.

- The external examiners are requested to ensure that a single experimental question should not be given to more than three students while examining a batch of 30 students during Board Examinations.

ALLOCATION OF MARKS

Draped pattern preparation	60 marks
Write up	30 marks
Viva	10 marks
Total	100 Marks

OBJECTIVES:

DRAFTING TOOLS

To learn different types of drafting tools of the following.

General (2) Select (3) Cut (4) Copy (5) Paste (6) Move (7) Line (8) Curve
(9) Internal (10) Grade (11) Seam (12) Other (13) Zoom

PATTERN DESIGN SYSTEM

To create a new file in the garment software.

To set the new working area and create pattern editing and saving.

DRAFTING OF POCKETS AND SLEEVES

Patch pocket

To draft different type of Sleeve of the following.

DRAFTING OF DIFFERENT TYPES OF COLLARS

To draft different type of Collars of the following.

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FULLNESS

To draft dart manipulation using pattern design system.

PATTERN GRADING

To grade it other sizes of the following garments.

Men's T-Shirt, Men's Shirt, Trouser Women's Knitted Top and Skirt

PATTERN MODIFICATION

To practice pattern modification for garment size and fit using pattern design system.

Equipment / Machines / Instruments required:

Computers Equipped with Garment CAD licensed Software - 15 Nos.

Printer / Plotter - 1 No.

Material required:

Print out Sheet for Taking the print out the designed garments in the computer system.

LIST OF EXPERIMENTS

1. Using the given measurement, prepare a pattern for Men's Half-Sleeve Shirt using pattern design system.
2. Using the given measurement, prepare a pattern for Men's Full-Sleeve Shirt using pattern design system.
3. Using the given measurement, prepare a pattern for Men's T- Shirt using pattern design system.
4. Using the given measurement, prepare a pattern for Men's Trouser using pattern design system.
5. Using the given measurement, prepare a pattern for Women's Top using pattern design system.
6. Using the given measurement, prepare a pattern for Women's Skirt using pattern design system.
7. Grade the given pattern from L Size to S, M and XL for Men's Half-Sleeve Shirt using pattern design system.
8. Grade the given pattern from L Size to S, M and XL for Men's Full-Sleeve Shirt using pattern design system.
9. Grade the given pattern from L Size to S, M and XL for Men's T- Shirt using pattern design system.
10. Grade the given pattern from L Size to S, M and XL for Men's Trouser using pattern design system.
11. Grade the given pattern from L Size to S, M and XL for Women's Top using pattern design system.
12. Grade the given pattern from L Size to S, M and XL for Women's Skirt using pattern design system.

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)
N - SCHEME

(To be implements to the students admitted from the year 2020-2021 onwards)

Course Name: DIPLOMA IN TEXTILE TECHNOLOGY (KNITTING)

Course Code: 1068

Subject Code: 4067660

Semester: VI Semester

Subject Title: PROJECT WORK AND INTERNSHIP

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 six.

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	
4067660 Project work and Internship	6	96	25	100*	100	3 Hrs.

* Examinations will be conducted for 100 marks and will be reduced to 75 marks.

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	6th week	10
Second Review	14th week	10
Attendance	Entire Semester	5
Total		25

ALLOCATION OF MARKS

Demonstration / presentation	25 marks
Report	25 marks
Viva Voce	30 marks
Internship Report	25 marks
Total	100 marks
