CURRICULUM – 2018

(C-18)

DIPLOMA IN TEXTILE TECHNOLOGY



STATE BOARD OF TECHNICAL EDUCATION & TRAINING

TELANGANA, HYDERABAD

III SEMESTER

TEACHING AND EXAMINATION SCHEME

Sl No	Course Code	Course Name	Teaching Scheme					Examination Scheme						
			Instruction Period per week			Total Periods per semester	Credits	Continuous Internal Evaluation			Semester End Examination			
			L	T	P			Mid Sem 1	Mid Sem 2	Internal evaluation	Max Marks / Min Marks		Total marks	Min marks for Passing including internal
1	18TT-301F	Applied Engineering mathematics	3	1	0	60	3	20	20	20	40	14	100	35
2	18TT-302C	Yarn Preparatory	3	1	0	60	3	20	20	20	40	14	100	35
3	18TT 303C	Basic Fabric Manufacture	3	1	0	60	3	20	20	20	40	14	100	35
4	18TT -304 C	Basic Textile Chemical Processing	3	1	0	60	3	20	20	20	40	14	100	35
5	18TT-305C	Fabric Structure and Design	3	1	0	60	3	20	20	20	40	14	100	35
6	18TT-306 P	Yarn Preparatory Lab Practice	1	0	2	45	1.5	20	20	20	40	20	100	50
7	18TT-307P	Basic Fabric Manufacture Lab Practice	1	0	2	45	1.5	20	20	20	40	20	100	50
8	18TT-308P	Basic Textile Chemical Processing Lab Practice	1	0	2	45	1.5	20	20	20	40	20	100	50
9	18TT-309P	Basic Fabric Structure and Design Lab Practice	1	0	2	45	1.5	20	20	20	40	20	100	50
10	18TT-310P	Communication skills and Life skills Lab Practice	1	0	2	45	1.5	20	20	20	40	20	100	50
11	Skill Up gradation		0	0	7	105	2.5	0	0	Rubrics			--	-
TOTAL			**20**	**5**	**17**	**630**	**25**	**200**	**200**	**200**	**400**	**170**	**1000**	**425**

Note: For Activities student performance is to be assessed through Rubrics.

Pass criteria: The minimum marks required for passing in any of courses are given below

1. Cumulative 35% (Mid Sem 1 + Mid Sem 2+ Tutorials+ End examination) and minimum marks in end examination is 35% (i.e.14marks).
2. If the cumulative of CIE is less than 35% (i.e.21 marks out of 60) therefore more than 35% of SEE is required to get overall 35%.

APPLIED ENGINEERING MATHEMATICS

Course Title **: APPLIED ENGINEERING MATHEMATICS**	Course Code **: 18C-301F**
SEMESTER : **III**	Course Group **: Foundation**
Teaching Scheme (L : T : P) : **36 :24 : 0 (** in Periods)	Credits : **3 Credits**
Type of Course : **Lecture + Assignments**	Total Contact Periods : **60**
CIE : 6**0 Marks**	SEE : **40 Marks**
Programmes : **Common to all Engineering Diploma Programmes**	

Pre requisites

This course requires the knowledge of Basic Engg. Mathematics and Engg. Mathematics at Diploma 1st and 2nd Semester level.

Course Outcomes: COs

At the end of the course, the student will have the ability to:

CO 1	Integrate different kinds of functions
CO 2	Integrate functions using different methods
CO 3	Find the values of definite integrals.
CO 4	Solve simple problems of Areas, Volumes.
CO 5	Find the Mean and RMS values of various functions and Approximate values of Definite integrals using Trapezoidal and Simpson's 1/3rd rule
CO 6	Form the Differential Equation and Solve Simple DEs of 1st order and 1stdegree.

Course Content:

Unit-I **Duration: 10 Periods (L: 6.0 – T:4.0)**

Indefinite Integration-I

Integration regarded as anti-derivative – Indefinite integral of standard functions. Properties of indefinite integral. Integration by substitution or change of variable. Integrals of the form $\sin^m\theta.\ \cos^n\theta$. where m and n are positive integers. Integrals of tan x, cot x, sec x, cosec x and powers of tan x, sec x by substitution.

Evaluation of integrals which are reducible to the following forms:

$$i)\ \frac{1}{a^2+x^2}, \frac{1}{a^2-x^2}, \frac{1}{x^2-a^2}$$

$$ii)\ \frac{1}{\sqrt{a^2+x^2}}, \frac{1}{\sqrt{a^2-x^2}}, \frac{1}{\sqrt{x^2-a^2}}$$

$$iii)\ \sqrt{x^2+a^2}, \sqrt{a^2-x^2}, \sqrt{x^2-a^2}$$

Unit – II **Duration: 08 Periods (L: 4.8 – T:3.2)**

Indefinite Integration-II

Integration by decomposition of the integrand into simple rational algebraic functions. Integration by parts, Bernoulli's rule.

Unit-III **Duration: 06 Periods (L: 3.6 – T:2.4)**

Definite Integral and its Properties:

Definite integral-fundamental theorem of integral calculus, properties of definite integrals, evaluation of simple definite integrals. Definite integral as the limit of a sum.

Unit – IV **Duration: 10 Periods (L: 6.0 – T:4.0)**

Applications of Definite Integrals:

Areas under plane curves – Sign of the Area – Area enclosed between two curves. Solid of revolution – Volumes of solids of revolution.

Unit – V **Duration: 08 Periods (L: 4.8 – T:3.2)**

Mean, RMS values and Numerical Integration:

Mean values and Root Mean Square values of a function on a given interval.

Trapezoidal rule, Simpson's 1/3 rule to evaluate an approximate value of a definite integral.

Unit – VI **Duration: 18 Periods (L: 10.8 – T:7.2)**

Differential Equations of First Order:

Definition of a differential equation – order and degree of a differential equation – formation of differential equations – solution of differential equation of first order, first degree : variables -separable, homogeneous, exact, linear differential equation, Bernoulli's equation.

Reference Books:

1. Integral Calculus Vol.I, by M.Pillai and Shanti Narayan
2. Thomas' Calculus, Pearson Addison –Wesley Publishers

Suggested E-Learning references

1. www.freebookcentre.net/mathematics/introductory-mathematics-books.html

2.E-books:www.mathebook.net

Suggested Learning Outcomes

Unit-I

1.0 Use Indefinite Integration to solve engineering problems

1.1 Explain the concept of Indefinite integral as an anti-derivative.

1.2 State the indefinite integral of standard functions and properties of Integrals $\int (u + v)\, dx$ And $\int ku\, dx$ where k is constant and u, v are functions of x.

1.3 Solve integration problems involving standard functions using the above rules.

1.4 Evaluate integrals involving simple functions of the following type by the method of substitution.

i) $\int f(ax + b)\, dx$ *where* $f(x)\, dx$ is in standard form.

ii) $\int [f(x)]^n f'(x)\, dx$

iii) $\int f'(x)/[f(x)]\, dx$

iv) $\int f\{g(x)\} g'(x)\, dx$

1.5 Find the Integrals of *tan x, cot x, sec x* and *cosec x using*the above.

1.6 Evaluate the integrals of the form $\int Sin^m\theta Cos^n\theta .\, d\theta$ where m and n are positive integers.

1.7 Evaluate integrals of powers of *tan x* and *sec x*.

1.8 Evaluate the Standard Integrals of the functions of the type

$$i)\ \frac{1}{a^2+x^2}, \frac{1}{a^2-x^2}, \frac{1}{x^2-a^2}$$

$$ii)\ \frac{1}{\sqrt{a^2+x^2}}, \frac{1}{\sqrt{a^2-x^2}}, \frac{1}{\sqrt{x^2-a^2}}$$

$$iii)\ \sqrt{x^2+a^2}, \sqrt{a^2-x^2}, \sqrt{x^2-a^2}$$

1.9 Evaluate the integrals of the type

$$\int \frac{1}{a \pm bSin\theta} d\theta, \int \frac{1}{a \pm b\cos\theta} d\theta \text{ and } \int \frac{1}{a\cos\theta \pm b\sin\theta \pm c} d\theta .$$

Unit-II

2.0 Use Indefinite Integration to solve engineering problems

2.1 Evaluate integrals using decomposition method.

2.2 Evaluate integrals using integration by parts with examples.

2.3 State the Bernoulli's rule for evaluating the integrals of the form $\int u.vdx$.

2.4 Evaluate the integrals of the form $\int e^x [f(x) + f'(x)]\, dx$.

Unit-III

3.0 Understand definite integral and use it in engineering applications

3.1 State the fundamental theorem of integral calculus

3.2 Explain the concept of definite integral.

3.3 Calculate the definite integral over an interval.

3.4 State various properties of definite integrals.

3.5 Evaluate simple problems on definite integrals using the above properties.

3.6 Explain definite integral as a limit of sum by considering an area.

Unit –IV

4.0 Understand definite integral and use it in engineering applications

4.1 Find the Areas under plane curves and area enclosed between two curves using integration.

4.2 Obtain the Volumes of solids of revolution.

Unit –V

5.0 Understand Mean, RMS values and Numerical Methods

5.1 Obtain the Mean value and Root Mean Square (RMS) value of the functions in any given Interval.

5.2 Explain the Trapezoidal rule, Simpson's 1/3 rules for approximation of definite integrals and provide some examples.

Unit –VI

6.0 Solve Differential Equations in engineering problems.

6.1 Define a Differential equation, its order and degree

6.2 Form a differential equation by eliminating arbitrary constants.

6.3 Solve the first order first degree differential equations by the following methods:

i. Variables Separable.

ii. Homogeneous Equations.

iii. Exact Differential Equations

iv. Linear differential equation of the form $dy/dx + Py = Q$,

where P and Q are functions of x or constants.

v. Bernoulli's Equation (Reducible to linear form.)

6.4 Solve simple problems leading to engineering applications by using above methods.

Suggested Student Activities

1. Student visits Library to refer Standard Books on Mathematics and collect related material

2.Quiz

3.Group discussion

4.Surprise tests

5. Seminars

6. Home Assignments

CO / PO - MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	Mapped POs
CO1	3	2	2	1			1			3	1,2,3,4,7,10
CO2	3	2	2	1			1			3	1,2,3,4,7,10
CO3	3	2	2	1			1			3	1,2,3,4,7,10
CO4	3	2	2	1			1			3	1,2,3,4,7,10
CO5	3	2	2	1			1			3	1,2,3,4,7,10
CO6	3	2	2	1			1			3	1,2,3,4,7,10

MID SEM-I EXAM

S.No	Unit Name	R	U	A	Remarks
1	Unit-I	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-II	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

MID SEM –II EXAM

S.No	Unit Name	R	U	A	Remarks
1	Unit-III	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-IV	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

Semester End Examination

Sl No	Unit No.	Questions to be set for SEE					Remarks
		R			U	A	
1	I	4	1		9(a)	13(a)	
2	II						
3	III		2		10(a)	14(a)	
4	IV						
5	V		3	5, 6	9(b) 11(a) 11(b)	13(b) 15(a) 15(b)	
6	VI			7,8	10(b) 12(a) 12(b)	14(b) 16(a) 16(b)	
Total Questions		8			8	8	

Legend:	Remembering (R)	1 Mark
	Understanding (U)	3 Marks
	Application (A)	5 Marks

Code: C18-Common-301F

BOARD DIPLOMA EXAMINATIONS

MID SEM –I, MODEL PAPER, III SEMESTER

APPLIED ENGINEERING MATHEMATICS

TIME: 1: 00 Hours Max. Marks: 20

PART-A

Instructions: 1. Answer **ALL** questions 04 X 01 = 04

2 Each question carries **ONE** mark

1. Integrate: $e^x - \sin x + x^4$
2. Find : $\int \frac{dx}{5x+7}$ dx
3. Write Bernoulli's rule of integration
4. Find : $\int x \log x \, dx$

PART-B

Instructions: 1. Answer any **TWO** questions 02 X 03 = 06

2. Each question carries **THREE** marks

5 a). Evaluate : $\int \frac{x^5}{1+x^{12}} dx$.

Or

5 b) Evaluate : $\int \frac{dx}{(x^{2+}25)}$

6 a). Evaluate : $\int x \, sinx dx$

Or

6 b).Evaluate : $\int \frac{3x+2}{(x-1)(2x+3)} dx$.

PART C

Instructions: 1. Answer any **Two** questions 02 X 05 = 10

2. Each question carries **FIVE** marks

7 a). Evaluate $\int \sqrt{x^2 + 2x + 5}$ dx

Or

7 b) Evaluate : $\int cosx \, cos2x dx$.

8 a). Find $\int xTan^{-1}x dx$.

Or

8 b) Find $\int x^4 Cos2x dx$.

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Code: C18-Common-301F

BOARD DIPLOMA EXAMINATIONS
MID SEM –II, MODEL PAPER, III SEMESTER
APPLIED ENGINEERING MATHEMATICS

TIME: 1: 00 Hours Max. Marks: 20

PART-A

Instructions: 1. Answer **ALL** questions 04 X 01 = 04

2 Each question carries **ONE** mark

1. Integrate : $\int_0^1 (x^4 + 1)\, dx$
2. Evaluate : $\int_0^{\pi} Sin3x dx$
3. Evaluate : $\int_0^1 \frac{1}{1+x^2} dx$
4. Write the formula to find area bounded by the curve y= f(x) , x-axis, between the limits x=a and x =b

PART-B

Instructions: 1. Answer any **TWO** questions 02 X 03 = 06

2. Each question carries **THREE** marks

Find the Mean value of the function y = logx on [1 , e]

5 a) Evaluate: $\int_0^{\frac{\pi}{2}} \sqrt{1 - Sin2x} dx$

Or

5 b) Evaluate : $\int_0^{\frac{\pi}{2}} sin^2 x dx$

6 a). Find the area bounded by the line 2x + y =8, x-axis and the lines x = 2 and x = 4.

Or

6 b). Find the Volume of the Solid generated by revolving the part of the Circle $x^2 + y^2 = 36$

From x = 0 to x = 4 about x – axis.

PART C

Instructions: 1. Answer any **Two** questions 02 X 05 = 10

2. Each question carries **FIVE** marks

7 a). Evaluate: $\int_0^{\frac{\pi}{2}} \frac{\sqrt{Sinx}}{\sqrt{Sinx}+\sqrt{Cosx}}\,dx$

Or

7 b). Evaluate : $\int_0^{\frac{\pi}{2}} \log sin\, x dx$

8 a) Find the area enclosed between the Parabolas $y = 3x - x^2 and y = x^2 - x$.

Or

8 b). Find the Volume of the Solid generated by the revolution of the area bounded by the Ellipse $\frac{x^2}{25} + \frac{y^2}{16} = 1$, about x- axis.

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C18-common

SUB.CODE:301F

BOARD DIPLOMA EXAMINATION,(C-18)
MODEL PAPER
III SEMESTER EXAMINATION
APPLIED ENGINEERING MATHEMATICS

Time: 2 hours [Total Marks: 40]

PART-A

Instructions: 1. Answer **ALL** questions 08 X 01 = 08

2 Each question carries **ONE** mark

1. Integrate: $x^7 - 3/x$

2. Evaluate: $\int_0^1 (x^2 + 1)$ dx

3. Write the formula to find mean value of y = f(x), in the interval (a, b)

4. Find the Order and Degree of the Differential Equation $x\frac{dy}{dx} = \sqrt{1 + \left(\frac{dy}{dx}\right)^2}$.

5 Write Trapezoidal Rule to find the approximate value of $\int_a^b f(x)dx$.

6. Write the formula to find RMS value of y = f(x) over the range x=a and x = b.

7. Solve:$\frac{dy}{dx} = e^{2x+y}$

8. Write the condition for exactness of the differential equation M(x,y)dx + N(x,y)dy =0

PART-B

Instructions: 1. Answer any **FOUR** questions 04 X 03 = 12

2. Each question carries **THREE** marks

9 a). Evaluate:$\int_0^{\frac{\pi}{2}} \sqrt{1 - Sin2x}dx$

Or

9 b) Find the approximate value of $\int_0^6 \frac{dx}{1+x}$ by taking n = 6 using Trapezoidal rule.

10 a) Find the area bounded by the Parabola $y = x^2 - 2x + 1$ and x-axis.

Or

10 b) Form the Differential Equation from $y = Ae^x + Be^{3x}$ where A, B are arbitrary Constants.

11 a) Find the RMS value of $\sqrt{\log x}$ over the range x= 1 and x= e

Or

11 b) Calculate approximate value of $\int_0^4 \frac{dx}{1+x}$ by taking n= 4 using Simpson's 1/3 rule

12 a) Solve: $x\frac{dy}{dx} + 2y = logx$.

Or

12 b) Solve: $x(1-y^2)dx + y(1-x^2)dy = 0$

PART C

Instructions: 1. Answer any **FOUR** questions 04 X 05 = 20

2. Each question carries **FIVE** marks

13 a) Evaluate: $\int \frac{1}{x^2+2x+2}$ dx

Or

13 b) Find the RMS value of $y = \sqrt{8-4x^2}$ between x = 0 and x = 2

14 a) Find the volume of solid generated by revolving the Ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ about Major axis

Or

14 b) Solve: $\frac{dy}{dx} = Sin(x+y)$

15 a) A curve is drawn to passing through the points given by the following table:

x	1	1.5	2	2.5	3	3.5	4
y	3	3.4	3.7	3.8	2.7	2.6	2.1

Calculate the approximate area bounded by the curve , x-axis and the lines x= 1 and x= 4 using Simpson's 1/3 rule

Or

15 b) Evaluate: $\int_0^1 \sqrt{(1-x^2)}dx$ approximately by taking n = 4 using

Simpson's 1/3 rd Rule.

16 a) Solve : $(y^2 - xy)dx = x^2dy$.

Or

16 b) . Solve: $\frac{dy}{dx} + yCosx = y^3$Sin2x.

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III SEMESTER

SKILL UPGRADATION IN - APPLIED ENGINEERING MATHEMATICS

ACTIVITY ASSESSMENT Steps

1. **Mathematical concepts**
2. **Procedure**
3. **Explanation**
4. **Working with others**
5. **Mathematical errors**

ACTIVITIES

1 .Write a short notes on different types of integrals.

2. Prepare a notes on different methods to evaluate integrals.

3. List out Properties of definite integrals.

4. List out and explain various applications of definite integrals.

5. Explain the procedure to solve problems on Areas using integration

6. Explain the procedure to find volumes of irregular shapes of solids of revolution using integration.

7. Prepare a presentation to find Mean values and R.M.S values of any given function.

8. Explain the procedure to calculate approximate area by using Trapezoidal rule.

9. Explain the procedure to calculate approximate area by Simpson's 1/3 rule

10. Prepare a presentation on solving 1st order differential equations using any suitable method.

CO / PO - MAPPING OF ACTIVITIES

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	2	1			1	2	2	3
CO2	3	2	2	1			1	2	2	3
CO3	3	2	2	1			1	2	2	3
CO4	3	2	2	1			1	2	2	3
CO5	3	2	2	1			1	2	2	3
CO6	3	2	2	1			1	2	2	3
CO7	3	2	2	1			1	2	2	3
CO8	3	2	2	1			1	2	2	3
CO9	3	2	2	1			1	2	2	3
CO10	3	2	2	1			1	2	2	3

Rubrics for Activity assessment

CATEGORY	**4**	**3**	**2**	**1**
Mathematical Concepts	Explanation shows complete understanding of the mathematical concepts used to solve the problem(s).	Explanation shows substantial understanding of the mathematical concepts used to solve the problem(s).	Explanation shows some understanding of the mathematical concepts needed to solve the problem(s).	Explanation shows very limited understanding of the underlying concepts needed to solve the problem(s) OR is not written.
Procedures	Typically, uses an efficient and effective procedure to solve the problem(s).	Typically, uses an effective procedure to solve the problem(s).	Sometimes uses an effective procedure to solve problems, but does not do it consistently.	Rarely uses an effective procedure to solve problems.
Explanation	Explanation is detailed and clear.	Explanation is clear.	Explanation is a little difficult to understand, but includes critical components.	Explanation is difficult to understand and is missing several components OR was not included.
Working with Others	Student was an engaged partner, listening to suggestions of others and working cooperatively throughout lesson.	Student was an engaged partner but had trouble listening to others and/or working cooperatively.	Student cooperated with others, but needed prompting to stay on-task.	Student did not work effectively with others.
Mathematical Errors	90-100% of the steps and solutions have no mathematical errors.	Almost all (85-89%) of the steps and solutions have no mathematical errors.	Most (75-84%) of the steps and solutions have no mathematical errors.	More than 75% of the steps and solutions have mathematical errors.

YARN PREPARATORY

Course Title :	**Yarn Preparatory**	Course Code	**18TT-302C**
Semester	**III**	Course group	**Core**
Teaching Scheme in Periods (L/T/P)	**3:1:0**	Credits	**3**
Methodology	**Lecture + Assignments**	Total Contact Hours	**60 Pds**
CIE Marks	**60 Marks**	SEE	**40 Marks**

Legends: L- Lecture, T- Tutorial, P-Practical

Pre Requisites

This course require the knowledge of basic knowledge on Textile Fibres and Elements of yarn manufacture

Course Outcomes

At the end of the course, student will have the ability to

S. No	Course Outcome	Cognitive Levels	Teaching Periods
CO1	Describe the process of bale opening and mixing of cotton and recognise the respective machines	R	**9**
CO2	Identify opening and cleaning machines and explain the process	R	**9**
CO3	Demonstrate the functions of various ancillary equipment	U	**9**
CO4	Identify the parts and explain the functions of carding machine	U	**9**
CO5	Identify the parts and explain the functions of drawing and combing machine	R/U	**12**
CO6	Outline the functions of various parts of simplex machine	R/U	**12**

Course Contents

1. Blow room **Duration: 9 Periods (L:7 – T:2)**

Classify cotton fibres based on staple length, fineness, trash - Strength and uniformity - Define fibre quality Index - Varieties of cotton grown in different states of India - Various trash contents and contamination in cotton - objectives / functions of blow room - Sequence of Blow room process sections / machinery - Components of blow room machinery - General sequence of machines in blow room installation - Objects of blending - Working principle of Mixing hopper bale opener , Automatic bale opening machine -Multi mixer (MPM).

2. Opening and Cleaning Machines **Duration: 9 Periods (L: 7– T:2)**

Principles of mechanical cleaning of cotton - Types of opening devices used in blow room - Explain the construction, working principles of - Step cleaner, Axi flow Cleaner (Dual roller cleaner) , Rieter Uni clean (Mono cylinder cleaner), ERM Cleaner , Kirshner beater, Cleanomat CVT/ CLC cleaner and Air flow cleaner -factors influencing intensity of opening and cleaning - considerations in determining degree of opening and cleaning

3. Ancillary Equipment in Blow room **Duration: 9 Periods (L: 7– T: 2)**

Ancillary equipments in blow room - gravity traps and metal extractors - types of fire protection systems in blow room- working principle of Contamination sorter, De-dusting machine - types of Waste disposal systems in a blow room - Pneumatic transport system using Cylinder cages - working principle of Air separators- function and importance of two way distributer and bypass arrangement - regulation and control of material flow -method of transport of material by chute feed system

4. Carding **Duration: 9 Periods (L: 7 – T:2)**

State the Objects of Carding - Types of wire point arrangements and its functions on a card

Passage of material on a flat revolving carding machine - licker in region, cylinder region of a carding machine- theory of carding action between the cylinder and flats - doffing region of card - factors that help transfer of fibres from one region other region - Coiler mechanism of a carding machine-Design parameters and construction of metallic wire clothing - tandem carding process - slow speed mechanism and stop motions on a card -developments in carding –setting points of carding machine -objects of stripping and grinding

5. Drawing and Combing **Duration: 12 Periods (L:9– T:3)**

Objects of Draw frame - basic functions of draw frame - passage of material and functions of a draw frame - principle of roller drafting - draft, break draft, main draft and total draft - principal parts of roller drafting system -types of top roller weighting system - different types of roller drafting systems -Auto leveller on a Draw frame -features of modern draw frame- Objects of combing -importance of combing - advantages of combing process / combed yarns -the process of lap doubling (Sliver lap followed by ribbon lap) -process of Sliver doubling (Super lap / Unilap)-comparison of lap doubling and sliver doubling process - passage of material through a modern comber -Sequence of operations in a rectilinear comber-Parameters influencing the combing operation --types of Combing based on Noil %-methods of Control of comber noil - features of Modern comber

6. Simplex **Duration: 12 Periods (L9: – T:3)**

Objects /functions of Fly frame -Passage of material on a simplex frame with line diagram -main operations / Functions of Fly frame - the parts and functions of High- draft drafting arrangement - advantages of apron drafting on a fly frame - functions of Simplex machine referring to main parts - principle of Imparting twist on fly frame - process of Winding the bobbin on a simplex machine - principle of cone drum drive transmission - working mechanism of Builder motion in the following

aspects - Monitoring devices on a Simplex machine -Automation in doffing and transport of bobbins to the ring frame - Mention the defects in speed frame process

Specific Learning Outcomes

1. **Understand the process of Bale Opening and Mixing**
   - 1.1. Classify cotton fibres based on staple length with count range
   - 1.2. Classify cotton fibres based on fineness with count range
   - 1.3. Classify cotton fibres based on trash for with count range
   - 1.4. Classify cotton fibres based on strength and uniformity
   - 1.5. Define fibre quality Index
   - 1.6. List the varieties of cotton grown in different states of India
   - 1.7. Tabulate Indian varieties cotton with their- length, fineness and count range
   - 1.8. List various trash contents and contamination in cotton
   - 1.9. State the objectives / functions of blow room
   - 1.10. Mention the sequence of Blow room process sections / machinery
   - 1.11. List the components of blow room machinery
   - 1.12. Write general sequence of machines in blow room installation
   - 1.13. State the Objects of blending
   - 1.14. Explain the working principle of Mixing hopper bale opener
   - 1.15. Explain the working of Automatic bale opening machine
   - 1.16. Explain the method of mixing cotton in Multi mixer (MPM)
2. **Understand the process of Opening and Cleaning**
   - 2.1. Explain different principles and means of mechanical cleaning of cotton
   - 2.2. Explain different types of opening devices used in blow room with simple sketches
   - 2.3. Explain the construction, working principles of following cleaning machines
     - 2.3.1. Step cleaner
     - 2.3.2. Axi flow Cleaner (Dual roller cleaner)
     - 2.3.3. Rieter Uni clean (Mono cylinder cleaner)
     - 2.3.4. ERM Cleaner
     - 2.3.5. Kirshner beater
     - 2.3.6. Cleanomat CVT/ CLC cleaner
     - 2.3.7. Air flow cleaner
   - 2.4. List out the factors influencing intensity of opening and cleaning
   - 2.5. Discuss various considerations in determining degree of opening and cleaning
3. **Understand the functions of Ancillary Equipment in Blow room**
   - 3.1. List the ancillary equipment in blow room

3.2. Explain about installation of gravity traps and metal extractors in blow room

3.3. Mention different types of fire protection systems in blow room

3.4. Explain the working principle of Contamination sorter

3.5. Explain the working principle of Dedusting machine "Dustex"

3.6. Mention the types of Waste disposal systems in a blow room

3.7. Explain Pneumatic transport system using Cylinder cages

3.8. Explain the working principle of Air separators

3.9. State the function and importance of two way distributer

3.10. State the function and importance of bypass arrangement

3.11. Explain the process of regulation and control of material flow

3.12. Explain the method of transport of material by chute feed system

4. Understand the process of Carding

4.1. State the Objects of Carding

4.2. Mention the types of wire point arrangements and its functions on a card

4.3. Describe the Passage of material on a flat revolving carding machine

4.4. State the Objects of licker in region

4.5. Explain the parts and functions of licker in region of a carding machine

4.6. State the objects of cylinder region

4.7. Explain parts and functions of cylinder region of a carding machine

4.8. Explain the theory of carding action between the cylinder and flats

4.9. Objects of doffer region

4.10. Explain parts and functions of doffing region of card

4.11. Write the factors that help transfer of fibres from one region other region

4.12. Explain the Coiler mechanism of a carding machine

4.13. Describe the design parameters and construction of metallic wire clothing

4.14. Explain about tandem carding process

4.15. Explain the importance slow speed mechanism and stop motions on a card

4.16. Explain the developments in carding

4.17. Draw the line diagram of carding machine and show the setting points.

4.18. State the objects of stripping and grinding

5. Understand process of Drawing and Combing

5.1. State the objects and basic functions of Draw frame

5.2. Describe the passage of material and functions of a draw frame

5.3. Explain the principle of roller drafting

5.4. Define the terms – draft, break draft, main draft and total draft

5.5. Explain the principal parts of roller drafting system

5.6. Write the types of top roller weighting system

5.7. Explain different types of roller drafting systems

5.8. Explain the functioning of Auto leveller on a Draw frame

5.9. Explain the features of modern draw frame.

5.10. Write the Objects and importance of combing

5.11. State the advantages of combing process / combed yarns

5.12. Explain the process of lap doubling (Sliver lap followed by ribbon lap)

5.13. Explain the process of Sliver doubling (Super lap / Unilap)

5.14. Compare the lap doubling and sliver doubling process

5.15. Explain the passage of material through a modern comber

5.16. Explain the Sequence of operations in a rectilinear comber

5.17. List out the Parameters influencing the combing operation

5.18. Mention the types of Combing based on Noil %

5.19. State the features of Modern comber

6. Understand process on a Simplex machine

6.1. List the objects /functions of Fly frame

6.2. Explain the Passage of material in a simplex frame with line diagram.

6.3. Explain the main operations / Functions of Fly frame

6.4. Explain the parts and functions of High- draft drafting arrangement

6.5. State the advantages of apron drafting on a fly frame

6.6. Explain the functions of major parts of Simplex machine

6.7. State the principle of Imparting twist on fly frame

6.8. Explain the process of Winding the bobbin on a simplex machine in the following aspects

6.8.1. Speed relations

6.8.2. Winding principle

6.8.3. Package build

6.8.4. Bobbin drive

6.9. Explain the principle of cone drum drive transmission

6.10. Explain the working mechanism of Builder motion in following aspects

6.10.1. Shifting of cone belt

6.10.2. Reversing the movement of bobbin rail

6.10.3. Shortening of lift

6.11. Explain the Monitoring devices on a Simplex machine

6.12. Explain the Automation in doffing and transport of bobbins to the ring frame

6.13. Mention the defects in speed frame process

Suggested Student Activities

1. Visit a spinning Mill , observe the machines in Blow room and draw the Layout of Blow room machinery of a spinning Mill on a chart (PO2,PO8,PO9,PO10)
2. Collect the brochures of different machines of spinning (blow room to simplex) from any industry (PO2,PO7,PO8,PO9,PO10)
3. Collect the photographs / animations / videos of various blow room machinery from the internet and present in the form of power point presentation (PO4,PO7,PO10)
4. Collect the photographs / animations / videos of spinning machinery (carding to simplex) from the internet and present in the form of power point presentation (PO4,PO7,PO10)
5. Prepare a chart / flexi showing the parts and functions of different spinning machinery (blow room to simplex) (PO2,PO4)
6. Draw the sketches on a chart / prepare a flexi showing the setting points of spinning machinery (blow room to simplex) (PO2,PO4)
7. Prepare a chart of ancillary machines used in blow room(PO2,PO3,PO4)
8. Identify different types of opening and cleaning devices used for in spinning ,machinery and draw the simple diagram on a chart (PO2,PO4)
9. Collect the samples of Carded sliver, draw frame sliver, roving strand from the industry and find the linear density in our lab (PO3,PO4,PO7)
10. Collect some spare parts of spinning machinery (blow room to simplex) / prepare a chart of spare parts stating the functions of each part(PO2,PO4,PO7,PO9)
11. Obtain the information from the industry about safety precautions in the spinning mill and submit a report (PO4,PO5,PO7,PO8)

Recommended Books

1. Manual of Textile Technology : Short staple spinning series Vol 1, 3, 4 – W.Klein
2. Elements of Blow room, Drawing and Combing - Dr. A.R. Khare
3. Spun yarn Technology Vol-I, II and III - Venkatasubramani
4. Spun Yarn Technology - Eric Oxtoby

Suggested e-Learning References

1. www.nptel.ac.in
2. www.textilelearner.blogspot.com
3. https://www.onlinetextileacademy.com
4. https://www.slideshare.net
5. https://textilechapter.blogspot.com
6. https://www.onlinetextileacademy.com

CO-PO Attainment Matrix

Course: Yarn preparatory											
Course Outcomes	Program Outcomes										Mapped POs
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	
CO1	1	3	1	2						1	1,2,3,4
CO2		3	1	2						1	2,3,4,10
CO3	1	3	1	2						1	1,2,3,4,10
CO4		3	1	2						1	2,3,4,10
CO5		3	1	2						1	2,3,4,10
CO6		3	1	2						1	2,3,4,10
Activities		2	1	3			2	1	1	1	2,3,4,7,8,910
Note: Correlation levels of CO with PO are rated as 1, 2 or 3 and are defined below: 3: Substantial (High), 2: Moderate (Medium), 1: Slight (Low), blank indicates no correlation											

Blue print of Marks and Questions for MSE and SEE

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Model Question Papers

BOARD DIPLOMA EXAMINATIONS, (C-18)
III SEMESTER – MID SEM I
Model Question Paper

[Time Duration: 1 Hour] **[Total Marks: 20]**

Sub Name : Yarn Preparatory

Sub Code : 18TT-302C

PART-A

Answer **ALL** questions and each question carries **01** Marks 04×01=4

1 Classify cotton fibres based on fineness with count range
2 Define fibre quality Index
3 State the principal of Step Cleaner and ERM cleaner
4 List out the factors influencing intensity of opening and cleaning

PART-B

Answer any **TWO** questions and each question carries **03** Marks. 02×03=6

5 (a) Write general sequence of machines in blow room installation
(OR)
(b) List the components of blow room machinery

6 {a) Explain different types of opening devices used in blow room with simple sketches
(OR)
(b) Write various considerations in determining degree of opening and cleaning

PART-C

Answer any **TWO** questions and each question carries 5 Marks. 02×5=10

7 (a) Explain the working principle of Mixing hopper bale opener
(OR)
(b) Explain the method of mixing cotton in Multi mixer (MPM

8 (a) Explain different principles and means of mechanical cleaning of cotton
(OR)
(b) Explain the construction, working principles of following cleaning machines
a) Axi flow Cleaner (Dual roller cleaner) b)Kirshner beater

BOARD DIPLOMA EXAMINATIONS, (C-18)
III SEMESTER – MID SEM II
Model Question Paper

[Time Duration: 1 Hour] **[Total Marks : 20]**

Sub Name : Yarn Preparatory

Sub Code : 18TT-302C-

PART-A

Answer **ALL** questions and each question carries **01** Marks 04×01=4

1 Mention different types of fire protection systems in blow room
2 State the function and importance of two way distributer
3 State the Objects of Carding
4 Write the factors that help transfer of fibres from one region other region

PART-B

Answer any **TWO** questions and each question carries **03** Marks. 02×03=6

5 {a) Explain the working principle of Contamination sorter
(OR)
(b) Explain the working principle of Dedusting machine "Dustex"

6 (a)Explain the parts and functions of licker in region of a carding machine
(OR)
(b) Draw the line diagram of carding machine and show the setting points.

PART-C

Answer any **TWO** questions and each question carries 5 Marks. 02×5=10

7 (a) Explain the process of regulation and control of material flow
(OR)
(b) Explain the method of transport of material by chute feed system

8 (a) Explain the Coiler mechanism of a carding machine
(OR)
(b) Explain the theory of carding action between the cylinder and flats

BOARD DIPLOMA EXAMINATION, (C-18)
End Semester Examination
Model Paper

DTT– III SEMESTER

TT-302C, Yarn Preparatory

*Time :*2 Hours] [Total Marks: 40

PART-A

08X01=08

Instructions : 1. Answer **ALL** questions.
2. Each question carries **ONE** mark.

1 List the varieties of cotton grown in different states of India
2 State the objects of stripping and grinding
3 Define the terms – draft, break draft
4 State the features of Modern comber
5 Mention the types of top roller weighting system
6 Writhe the functions of licker in region of a carding machine
7 List the objects of Fly frame
8 State the principle of Imparting twist on fly frame

PART-B

04X03=12

Instructions : 1. Answer any **FOUR** questions.
2. Each question carries **THREE** marks.

9 (a) Classify cotton fibres based on strength and uniformity

(OR)

(b) Explain the functioning of Auto leveler on a Draw frame

10 (a) State the function and importance of bypass arrangement

(OR)

(b) Explain the Passage of material in a simplex frame with line diagram t

11 (a)Explain the principle of roller drafting

(OR)

(b) Explain the passage of material through a modern comber

12 (a)Explain the main operations / Functions of Fly frame

(OR)

(b) Explain the principle of cone drum drive transmission

PART-C

04X5=20

Instructions : 1. Answer any **FOUR** questions.
2. Each question carries **FIVE** marks.

13 (a)Explain the working principle of Mixing hopper bale opener

(OR)

(b)Explain the passage of material through a modern comber

14 (a)Explain the working principle of Air separators

(OR)

(b)Explain the functions of major parts of Simplex machine

15 (a)Describe the passage of material and functions of a draw frame

(OR)

(b)Explain the Sequence of operations in a rectilinear comber

16 a) Explain the Passage of material in a simplex frame with line diagram.

(OR)

(b) Explain the Monitoring devices on a Simplex machine

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18TT-303C- BASIC FABRIC MANUFACTURE

Course Title :	**Basic Fabric Manufacture**	Course Code	**18TT-303C**
Semester	**III**	Course group	**Core**
Teaching Scheme in Periods (L/T/P)	**3:1:0**	Credits	**3**
Methodology	**Lecture + Assignments**	Total Contact Hours	**60 Pds**
CIE Marks	**60 Marks**	SEE	**40 Marks**

Legend: L- Lecture, T- Tutorial, P-Practical

Pre Requisites

This course require basic knowledge of fabric formation on a handloom by a weaver and exposure to handloom and power loom

Course Outcomes

At the end of the course, student will have the ability to

S. No	Course Outcome	Cognitive Levels	Teaching Periods
CO1	Illustrate the objects, types and process of warping	**R**	**9**
CO2	List the sizing materials and summarise sizing methods	**R**	**9**
CO3	Outline the process of weft winding and define looming operations	**R /U**	**9**
CO4	Explain the primary motions of a loom	**R / U**	**9**
CO5	Explain the secondary and auxiliary motions of a loom	**R / U**	**12**
CO6	Explain the loom faults and fabric defects	**R / U**	**12**
	Total Periods		**60**

Course Contents

1. Warping **Duration: 9 Periods (L: 7 – T:2)**

Objects of warping process-classification of warping machines-passage of material on a beam warping machine and Sectional warping machine-different types of creels -mechanical type thread stop motion -considerations to prepare dye beams -modern developments in Warping - defects in warping beam - causes and remedies of various defects in warp beam -causes of end breaks in warping -measures to reduce waste in warping -factors influencing productivity in warping

2. Sizing **Duration: 9 Periods (L: 7– T:2)**

Types of sizing machines -passage of material on a Slasher sizing machine -types of creels used for back beams in sizing -sizing on a conventional size box -drying the sized warp -main parts of Head

stock in sizing -types of combs used in head stock -Measuring and marking device -Beam pressing device -Splitting arrangements -various control systems on a modern sizing machine -systems of single end sizing -sizing of synthetic and blended yarns -process control measures in sizing - developments in sizing

3. Weft Preparation and Looming **Duration: 9 Periods (L: 7 – T:2)**

Object of weft winding -automatic pirn winding machine -Reasons for obsolescence of weft winding -drawing in operation -types of drawing in / tying -methods of drawing in process for weaving - denting in operation -fully automatic drawing in and reaching machine -knotting or tying and twisting process -tying on methods -Gaiting of new warp on a loom

4. Primary motions of a loom **Duration: 9 Periods (L: 7– T:2)**

Types of shedding mechanisms and shed formations -D Positive and Negative tappet shedding - Negative Tappet Shedding types of the heald reversing motions for negative tappet shedding -of tappet and depth of shed -need for counter shaft arrangement -normal shedding, early shedding and late shedding -advantages and disadvantages of tappet shedding.-Methods of picking-types of shuttle picking mechanisms - cone over pick mechanisms -Side lever under pick mechanism -functions of picking accessories -demerits of shuttle picking.-crank and crank arm Beat up mechanism-functions of reed -eccentricity of the sley

5. Secondary and Auxiliary motions of a loom **Duration: 12 Periods (L:9– T: 3)**

objects of Let off motion- negative and positive type of let off motions -Working of negative let off motion and its limitations-demerits of Negative Let off motion-different types of back rests - mechanism of Bartlett positive let off motion -Understand the take up mechanism.-objects of Take up motion.-7 wheel Take-up motion - worm and worm wheel type positive take up motion -different cloth winding systems by simple diagrams - Objects of stop motions-working of Side weft fork motion-Centre weft fork motion.-State the objects of warp stop motions- types of warp stop motions.-electrical warp stop motion.-loose reed motion.-fast reed motion.-electromagnetic warp protector motion.

6. Loom accessories, Weaving faults and fabric defects **Duration: 12 Periods (L: 9- T:3)**

Types of temples -types and functions of Loom drive -advantages of individual loom drive - advantages of group drive in a loom shed -brake mechanism of a power loom –Anti crack motion - Loom accessories - hand of the shuttle -types of healds -properties of ideal picker-advantages of plastic picker -function of Picking bands -functions of Buffer -functions and care of reed - List out various causes and factors affecting the warp breaks - cover factor - methods of improving the cover of the fabrics -causes and remedies of shuttle fly out and shuttle trap –classify fabric defects as major, minor, warp defects, weft defects - causes and remedies for fabric defects, warp defects and weft defects - grades of fabric -atmospheric conditions for loom shed

Specific Learning Outcomes

1. Understand Warping

1.1. State the objects of warping process.
1.2. Write the classification of warping machines.
1.3. Explain the passage of material on a beam warping machine
1.4. Explain the passage of material on a Sectional warping machine.
1.5. Explain different types of creels used for high speed warping
1.6. Explain mechanical type thread stop motion of a warping machine
1.7. Write the considerations to prepare dye beams
1.8. State the differences between beam warping and sectional warping in process and applications
1.9. Write the modern developments in Warping
1.10. List the defects in warping beam
1.11. Explain about process control measures in warping

2. Understand Sizing

2.1. Explain the functions of sizing ingredients stating examples for each
2.2. Classify different types of sizing machines
2.3. Explain the passage of material on a Slasher sizing machine
2.4. Explain different types of creels used for back beams in sizing
2.5. Explain the method size preparation on a conventional size box
2.6. Explain different methods of drying the sized warp
2.7. Mention the main parts of Head stock in sizing
2.8. Mention different types of combs used in head stock of sizing
2.9. Explain the following devices on a sizing machine
    2.9.1. Measuring and marking device
    2.9.2. Beam pressing device
    2.9.3. Splitting arrangements
2.10. Explain the various control systems on a modern sizing machine
2.11. Explain different systems of single end sizing
2.12. Explain about sizing of synthetic and blended yarns
2.13. Explain about process control measures in sizing
2.14. Explain modern developments in sizing

3. Understand Weft Preparation and Looming

3.1. State the object of weft winding
3.2. Explain the process of winding on automatic pirn winding machine
3.3. State the reasons for obsolescence of weft winding
3.4. List the looming in operations
3.5. State the objects of drawing in operation
3.6. Mention the types of drawing in / tying
3.7. Explain the different methods of drawing in process for weaving
3.8. State the object of denting in operation
3.9. Explain the process of manual denting in operation
3.10. Explain the feature of fully automatic drawing in and reaching machine
3.11. Explain about knotting or tying and twisting process
3.12. Understand the tying on methods
3.13. Explain the process of Gaiting of new warp on a loom

4. Understand Primary motions of a loom

4.1. Write different types of shedding mechanisms.
4.2. Define different types of shed formations
4.3. Define Positive and Negative tappet shedding
4.4. Explain the mechanism of Negative Tappet Shedding found on a plain power loom.
4.5. Explain the working principle of positive tappet shedding

4.6. Explain different types of the heald reversing motions for tappet shedding
4.7. Explain different types of shed formations
4.8. Define the terms throw of tappet and depth of shed
4.9. State the need for counter shaft arrangement
4.10. Define normal shedding, early shedding and late shedding
4.11. List the advantages and disadvantages of tappet shedding.
4.12. Mention different Methods of picking.
4.13. List the types of shuttle picking mechanisms
4.14. Explain the cone over pick mechanisms
4.15. Explain cone under pick meachanism
4.16. Explain the Side lever under pick mechanism
4.17. Explain the functions of picking accessories
4.18. State the demerits of shuttle picking.
4.19. Explain the crank and crank arm Beat up mechanism
4.20. State the functions of reed
4.21. Define eccentricity of the sley
4.22. Draw the timing diagram of primary motions and explain

5. Understand Secondary and Auxiliary motions of a loom

5.1. Understand the Let off motion.
5.1.1. State the objects of Let off motion.
5.1.2. Define negative and positive type of let off motions
5.1.3. Explain the Working of negative let off motion and its limitations.
5.1.4. Mention the demerits of Negative Let off motion.
5.1.5. Mention different types of back rests
5.1.6. Explain the mechanism of positive let off motion
5.2. Understand the take up mechanism.
5.2.1. State the objects of Take up motion.
5.2.2. Explain the working of 7 wheel Take-up motion.
5.2.3. Explain the mechanism of positive take up motion
5.2.4. Explain different cloth winding systems by simple diagrams
5.3. Auxiliary motions
5.3.1. State the objects of stop motions
5.3.2. Explain the working of Centre weft fork motion.
5.3.3. Write the types of warp stop motions.
5.3.4. Explain the mechanism of electrical warp stop motion.
5.3.5. Explain the mechanism of loose reed motion.
5.3.6. Explain the mechanism of fast reed motion.
5.3.7. Compare loose reed and fast reed motion
5.3.8. Explain the principle of electromagnetic warp protector motion

6. Loom Drives, Accessories , Weaving faults and fabric defects

6.1. Loom drives and accessories
6.1.1. Objects of temples on a power loom
6.1.2. Explain different types of temples
6.1.3. Mention different types and functions of Loom drive
6.1.4. State the advantages of individual loom drive
6.1.5. State the advantages of group drive in a loom shed
6.1.6. Explain the brake mechanism of a power loom
6.1.7. Explain the working of Anti crack motion
6.1.8. Define the hand of the shuttle
6.1.9. Mention the types of healds
6.1.10. State the properties of ideal picker
6.1.11. State the advantages of plastic picker
6.1.12. State the functions of Picking bands and Buffer

6.1.13. State the functions and care of reed

6.2. Weaving Faults and fabric defects

6.2.1. List out various causes of warp breaks
6.2.2. Explain the factors affecting the warp breaks
6.2.3. List the causes and remedies of shuttle fly out
6.2.4. List the causes and remedies of shuttle trap
6.2.5. Tabulate fabric defects as Major and minor
6.2.6. Classify as warp defects, weft defects and fabric defects
6.2.7. Mention different grades of fabric
6.2.8. Mention the atmospheric conditions for loom shed

Suggested Student Activities

1. Prepare a flow chart / flexi showing the sequence of weaving preparatory (PO2)
2. Visit a sizing mill and study end breakage rate in a shift and write the probable causes of end breaks during warping (PO3,PO4,PO8, PO10)
3. Prepare charts for primary, secondary and auxiliary motions of a loom (PO2)
4. Visit a sizing mill and note down all the chemical ingredients used for size paste and write the purpose of each ingredient (PO2,PO6,PO7)
5. Collect photographs/ animations / videos on mechanism of a loom and present it in the class room using a power point presentation (PO2,PO9)
6. Collect a grey fabric produced on a power loom and check for weaving faults and fabric defects and suggest the remedies.(PO5,PO10)
7. Visit a loom shed, meet the weaver , find out the common problems of loom mechanisms and prepare a report (PO5)
8. Visit a loom shed, prepare a report on economics of producing a fabric from the yarns mentioning the raw material cost, machinery cost, power cost , labour cost etc.,(PO7,PO8,PO9)
9. Visit a weaving mill and make a list of all the accessories of a power loom, take a photograph , present it in the class room using a power point and explain the functions of each accessory (PO2,PO4,PO9)

Recommended Books

1. Sizing materials, Methods and Machines - Ajgoanker
2. Weaving Mechanism I & II - N.N. Benarje
3. Plain Weaving motions - K.T. Aswani
4. Fabric Manufacture - Hasmukharai
5. Woven Fabric Production-I - NCUTE
6. Principles of Weaving - Marks & Robin Son
7. Yarn Preparation – Gokernasan

Suggested e-Learning References

1. www.nptel.ac.in
2. www.textilelearner.blogspot.com
3. https://www.onlinetextileacademy.com
4. https://www.slideshare.net
5. https://textilechapter.blogspot.com
6. https://www.onlinetextileacademy.com

CO-PO Attainment Matrix

Course: Basic fabric manufacture											
Course Outcomes	Program Outcomes										Mapped POs
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	
CO1	1	3		2							1,2,4
CO2		3		1	1						2,4,5
CO3		3		1							2,4
CO4		3		2	1						2,4,5
CO5		3	2	2		1					2,3,4,6
CO6		3	1		1	1					2,3,5,6
Activities		2	1	2	1	1	1	1	1	1	2,3,4,5,6,7,8,9,10
Note: Correlation levels of CO with PO are rated as 1, 2 or 3 and are defined below: 3: Substantial (High), 2: Moderate (Medium), 1: Slight (Low), blank indicates no correlation											

Blue print of Marks and Questions for MSE and SEE

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<tr><td colspan="6">MID SEM – I EXAM</td></tr>
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<tr><td colspan="3">Understanding (U)</td><td colspan="2">3 Marks</td></tr>
<tr><td colspan="3">Application (A)</td><td colspan="2">5 Marks</td></tr>
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Model Question Papers

BOARD DIPLOMA EXAMINATION, (C-18)
MID EXAM-I
DTT– III SEMESTER EXAMINATION

TT-303C BASIC FABRIC MANUFACTURE

*Time :*1 Hours] [Total Marks: 20

PART-A

04X01=04

Instructions : 1. Answer **ALL** questions.
2. Each question carries **ONE** mark.

1. What is warping process
2. What is meant by end breaks in warping
3. Write any two types of sizing machines
4. Write types of creels used for back beam in sizing

PART-B

02X03=06

Instructions : 1. Answer any **TWO** questions.
2. Each question carries **THREE** marks.

5 (a) State the objects of warping process

(OR)

(b)List the defects in warping beam

6. (a) Mention different parts of head stock in sizing

(OR)

(b)Mention different types of combs used in head stock of sizing

PART-C

02X5=10

Instructions : 1. Answer any **TWO** questions.
2. Each question carries **FIVE** marks.

7. (a)Explain the passage of material on beam warping machine

(OR)

(b)Explain the passage of material on sectional warping machine

8. (a)Explain the methods size preparation on a conventional size box

(OR)

(b)Explain the different systems of single end sizing

BOARD DIPLOMA EXAMINATION, (C-18)
MID EXAM-II
DTT– III SEMESTER EXAMINATION

TT-303 C BASIC FABRIC MANUFACTURE

*Time :*1 Hours] [Total Marks: 20

PART-A

04X01=04

Instructions : 1. Answer **ALL** questions.
2. Each question carries **ONE** mark.

1 .What is meant by weft winding
2 . What is tying
3. Write different types of shed formation
4. Define positive and negative shedding

PART-B

02X03=06

Instructions : 1. Answer any **TWO questions**.
2. Each question carries **THREE** marks.

5 .(a) State the objects of weft winding

(OR)

(b)State the objects of drawing in operation

6. (a)State the demerits of shuttle picking

(OR)

(b)State the functions of reed

PART-C

02X5=10

Instructions : 1. Answer any **TWO** questions.
2. Each question carries **FIVE** marks.

7.(a)Explain the process of manual denting in operation

(OR)

(b)Explain the process of Gaiting of new warp on a loom

8.(a)Explain cone pick mechanism

(OR)

(b)Explain the crank and crank arm beat up mechanism

BOARD DIPLOMA EXAMINATION, (C-18)
End Semester Examination Model Paper
DTT– III SEMESTER

TT-303C Basic Fabric Manufacture

*Time :*2 Hours] [Total Marks: 40

PART-A

08X01=08

Instructions : 1. Answer **ALL** questions.
2. Each question carries **ONE** mark.

1. Define the primary motions of a loom and what are they?
2. State the objects of Shedding.
3. What are the picking accessories? Name them.
4. Define shuttle? Draw the sketch and show the parts.
5. What are the objects of weft stop motion and what are its types?
6. List the types of temples.
7. What is a heald shaft and what are the functions of heald shafts?
8. Define cover factor and give the formula for it.

PART-B

04X03=12

Instructions : 1. Answer any **FOUR** questions.
2. Each question carries **THREE** marks.

9. (a) What are different kinds of warp defects?

(OR)

(b) Mention any six causes of weft breakages

10. (a) Explain the passage of warp on a plain power loom with a sketch.

(OR)

(b)Explain loom timing diagram with a sketch.

11. (a) Compare cone over picking and cone underpicking

(OR)

(b)Explain the picker and its functions.

12. (a) Define beat up and draw the diagram.

(OR)

(b) what are the parts of side weft fork mechanism?

PART-C

04X5=20

Instructions : 1. Answer any **FOUR** questions.
2. Each question carries **FIVE** marks.

12. (a) Mention different kinds of back rests? And write about them.

(OR)

(b) Write about anti – crack motion in take-up mechanism with a sketch.

13. (a) Explain the principle and working of electromagnetic warp protector motion

(OR)

14. (b) What are various loom faults? Write the causes for any three of them.

15. (a) Explain the Negative Tappet Shedding mechanism on a plain power loom with a sketch.

(OR)

(b)Explain the function of temples on the loom and explain the types?

16. (a)Explain the center weft fork mechanism with a sketch

(OR)

(b) Explain the brake mechanism with a sketch.

18TT-304C- BASIC TEXTILE CHEMICAL PROCESSING

Course Title :	**Basic Textile Chemical Processing**	Course Code	**18TT-304C**
Semester	**III**	Course group	**Core**
Teaching Scheme in Periods (L/T/P)	**3:1:0(15:0:30)**	Credits	**3**
Methodology	**Lecture + Assignments**	Total Contact Periods	**60 Periods**
CIE Marks	**60 Marks**	SEE	**40 Marks**

Legend: L- Lecture, T- Tutorial, P-Practical

Pre Requisites

This course require the knowledge of basic knowledge on types of fibres, knowledge of water and wetting principle and natural impurities in the textiles

Course Outcomes

S. No	Course Outcome	Cognitive Levels	Teaching Periods
CO1	Outline the process sequence for preparation of textile before wet processing	**R**	**9**
CO2	Explain singeing, desizing and scouring of cotton textiles	**R**	**9**
CO3	Explain the process of bleaching and mercerising the cotton textiles	**R /U**	**9**
CO4	To classify dyes and outline the general mechanism of dyeing	**R / U**	**9**
CO5	To describe the process of applying various dyes on cotton	**U**	**12**
CO6	To identify different types of dyeing machines	**U**	**12**
	Total Periods		**60**

Course Contents

1. Introduction **Duration: 9 Periods (L: 7 – T: 2)**

Requirements of water for chemical processing of textiles-Difference between hard water and soft water -Difference between temporary hardness and Permanent hardness - Zeolite process of removing water hardness - mechanism of wetting textile material-functions of soaps and detergents in wet processing-Name some anionic, cationic and non ionic surface active agents-Draw the wet processing flow chart for cotton and define each process-Tabulate the sequence of chemical preparatory treatments for the textiles made by different

types of fibres-sequence of wet processing for yarns, woven fabrics and knitted fabric-commonly used chemicals in wet processing of textiles along with chemical formulae and the process in which they are used- effect of PH on different textile fibres-some sequestering agents / chelating agents

2. Singeing, Desizing and Scouring **Duration: 9 Periods (L: 7– T:2)**

Objects of grey testing, stamping, mending and stitching- principle of shearing and cropping -process of singeing by plate, roller and Gas- precautions to be taken during singeing-principle of singeing tubular fabric-objects of desizing and classify methods of desizing-acid steeping methods -method of continuous enzymatic desizing method-principle of continuous oxidative desizing-desizing by low temperature plasma treatment -Method of evaluating desizing efficiency-objects and methods of scouring- chemicals used in scouring and their role in it- process of Batch wise scouring using Kier-continuous scouring process using J box - principle of hank yarn scouring using tank- package yarn scouring-precautions to be taken during Scouring- principle of solvent scouring--principle of bio scouring using enzymes-principle of scouring coloured goods- principle of combined desizing and scouring

3. Bleaching and Mercerising **Duration: 9 Periods (L: 7 – T:2)**

Objects of Bleaching and mercerising-commonly used bleaching agents for textiles-process of hypochlorite (Sodium /Calcium) bleaching- demerits of hypochlorite bleaching-merits of peroxide bleaching-properties and chemical behaviour of Hydrogen Peroxide.-Stabilizers used for hydrogen peroxide- Strength of Hydrogen Peroxide-Continuous bleaching using Vapour loc machine-Continuous Scouring and Bleaching by Using J-Box.- principle of bio bleaching using enzymes-principle of ozone bleaching-principle of combined scouring and bleaching-principle of bleaching coloured woven fabrics-methods of testing bleached fabric-principle of Mercerizing cotton -process of Yarn mercerization-process of woven fabric mercerization-process of mercerizing knitted fabrics- tests for mercerized fabrics-process sequence of combined scouring, bleaching and mercerising- principle of foam preparatory process-principle of liquid ammonia treatment - eco friendly approaches to the pre treatments

4. Basics of Dyes and Dyeing **Duration: 9 Periods (L: 7– T:2)**

General characteristics of dyes-essential properties of dye stuffs-Classify dyes based on chemical nature-Classify dyes as per application- general characteristics and properties of dyes-Tabulate applicability of various dyes on different fibres-characteristics of dyeing-Compare Dyes and Pigments-natural dyes of different origin-differences between natural and synthetic dyes- advantages and disadvantages of natural dyes-sources of natural dyes-some important natural dyes- different forms of textiles used for dyeing and colouration-different types of dyeing based on form of textiles-Tabulate the functional groups in textile fibres responsible for dyeing-Tabulate the % swelling of textile fibres in water- forces responsible for dye fixation on fibres- dye bath interactions during dyeing of textiles- role of additives in dyeing - general mechanism of dyeing- process of batch dyeing-process of continuous dyeing-Define the general terms used in dyeing -Tabulate the identifying features, advantages, disadvantages of fibre dyeing, yarn dyeing, fabric dyeing and product dyeing- colour fastness ratings to light and wash

5. Dyeing of Cotton **Duration: 12 Periods (L: 9– T: 3)**

Stages involved in application of direct dyes-after treatments for direct dyed cotton-application of cold brand reactive dyes- application of hot brand reactive dyes-Stages involved in application of sulphur dyes-Causes of bronzing of sulphur dyed material - methods of removing bronziness-tendering of sulphur black-stages involved in application of Vat dyes- stages involved in application of solubilised Vat dyes-stages involved in application of Azoic dyes- stages in application of oxidation colours.

6. Dyeing Machinery **Duration: 12 Periods (L: 9– T:3)**

Essential requirements of dyeing machinery-package dyeing machine used for loose cotton - advantages and disadvantages of loose cotton dyeing- Hank dyeing machine -Cheese dyeing machine -Beam warp dyeing machine - principle of Jigger dyeing machines -principle of Winch dyeing machines -construction and working of HTHP Beam dyeing machine - construction and working of Soft flow jet dyeing machine -garment dyeing using paddle dyeing machine -garment dyeing using Rotary dyeing machine - garment dyeing using Tumbler dyeing machine - principle of 3 bowl padding mangle -different methods of water extraction from the wet fabric - principle of centrifugal hydro extractor - different methods of fabric drying

Specific Learning Outcomes

1 Introduction

1.1 State the requirements of water for chemical processing of textiles
1.2 Difference between hard water and soft water
1.3 Difference between temporary hardness and Permanent hardness
1.4 Explain the Zeolite process of removing water hardness
1.5 Explain the mechanism of wetting textile material
1.6 State the functions of soaps and detergents in wet processing
1.7 Name some anionic, cationic and non ionic surface active agents
1.8 Tabulate the sequence of chemical preparatory treatments for the textiles made by different fibres
1.9 Write the sequence of wet processing for yarns, woven fabrics and knitted fabric
1.10 Tabulate commonly used chemicals in wet processing of textiles along with chemical formulae and the process in which they are used
1.11 State the effect of PH on different textile fibres
1.12 List some sequestering agents / chelating agents

2 Singeing, Desizing and Scouring of cotton textiles

2.1 Write the objects of grey testing, stamping, mending and stitching
2.2 State the principle of shearing and cropping
2.3 Singeing
- 2.3.1 Explain the process of singeing by plate, roller and Gas
- 2.3.2 Write the precautions to be taken during singeing
- 2.3.3 State the principle of singeing tubular fabric

2.4 Desizing
- 2.4.1 State the objects of desizing
- 2.4.2 classify methods of desizing
- 2.4.3 Explain the acid steeping methods Desizing
- 2.4.4 Explain the method of continuous enzymatic desizing method
- 2.4.5 State the principle of continuous oxidative desizing method
- 2.4.6 Explain the desizing by low temperature plasma treatment
- 2.4.7 Explain method of evaluating desizing efficiency

2.5 Scouring
- 2.5.1 State the objects and methods of scouring
- 2.5.2 Mention the chemicals used in scouring and their role in it
- 2.5.3 Describe the process of Batch wise scouring using Kier
- 2.5.4 Describe the continuous scouring process using J box
- 2.5.5 Explain the principle of hank yarn scouring using tank
- 2.5.6 Explain the method of package yarn scouring
- 2.5.7 List the precautions to be taken during Scouring
- 2.5.8 Explain the developments in scouring -solvent scouring and bio scouring
- 2.5.9 State the principle of scouring coloured goods

2.6 State the principle of combined desizing and scouring

3 Bleaching & Mercerising

3.1 State the objects of Bleaching and mercerising
3.2 List commonly used bleaching agents for textiles
3.3 Explain the process of hypochlorite (Sodium /Calcium) bleaching
3.4 State the demerits of hypochlorite bleaching
3.5 Write the merits of peroxide bleaching
3.6 Write the properties and chemical behaviour of Hydrogen Peroxide.
3.7 List the stabilizers used for hydrogen peroxide
3.8 Express the Strength of Hydrogen Peroxide
3.9 Explain Continuous bleaching using Vapour loc machine
3.10 Explain Continuous Scouring and Bleaching by Using J-Box.
3.11 Explain the principle of bio bleaching using enzymes
3.12 Explain the principle of ozone bleaching
3.13 State the principle of bleaching coloured woven fabrics
3.14 Mention the methods of testing bleached fabric
3.15 State the principle of Mercerizing cotton
3.16 Explain the process of Yarn mercerization
3.17 Explain the process of woven fabric mercerization
3.18 Explain the process of mercerizing knitted fabrics
3.19 Mention the tests for mercerized fabrics
3.20 Write the process sequence of combined scouring, bleaching and mercerising
3.21 State the principle of foam preparatory process
3.22 Sate the principle of liquid ammonia treatment
3.23 Discuss eco friendly approaches to the pre treatments

4 Basics of dyes and Dyeing

4.1 Colouring matter

4.1.1 List the general characteristics dyes
4.1.2 Classify dyes based on chemical nature and application
4.1.3 Explain general properties of dyes
4.1.4 Tabulate applicability of various dyes on different fibres and state the characteristics of dyeing
4.1.5 Compare Dyes and Pigments
4.1.6 List the natural dyes of different origin
4.1.7 Write the sources of natural dyes
4.1.8 List the differences between natural and synthetic dyes
4.1.9 State the advantages and disadvantages of natural dyes
4.1.10 Explain about some important natural dyes

4.2 Understand the general mechanism of dyeing

4.2.1 List different forms of textiles used for dyeing and colouration
4.2.2 Explain different types of dyeing based on form of textiles
4.2.3 Tabulate the functional groups in textile fibres responsible for dyeing
4.2.4 Tabulate the % swelling of textile fibres in water
4.2.5 Explain the forces responsible for dye fixation on fibres
4.2.6 Explain the dye bath interactions during dyeing of textiles
4.2.7 Explain the role of additives in dyeing
4.2.8 Explain the general mechanism of dyeing
4.2.9 Explain the process of batch dyeing
4.2.10 Explain the process of continuous dyeing
4.2.11 Define the general terms used in dyeing
4.2.12 Tabulate the identifying features, advantages, disadvantages of fibre dyeing, yarn dyeing, fabric dyeing and product dyeing
4.2.13 Specify the colour fastness ratings to light and wash

5 Dyeing of Cotton

5.1.1 Explain the process stages involved in application of direct dyes
5.1.2 Mention the after treatments for direct dyed cotton
5.1.3 Explain the procedure of application of cold brand reactive dyes
5.1.4 Explain the procedure of application of hot brand reactive dyes
5.1.5 Explain the process stages involved in application of sulphur dyes
5.1.6 Causes of bronzing of sulphur dyes material
5.1.7 Mention the methods of removing bronziness
5.1.8 Explain the meaning of tendering of sulphur black
5.1.9 Explain the process stages involved in application of Vat dyes
5.1.10 Explain the process stages involved in application of solubilised Vat dyes
5.1.11 Explain the process stages involved in application of Azoic dyes
5.1.12 Explain the process stages in application of oxidation colours

6 Dyeing Machinery

6.1 Write the essential requirements of dyeing machinery
6.2 Fibre dyeing machines
6.2.1 Explain package dyeing machine used for loose cotton
6.2.2 State the advantages and disadvantages of loose cotton dyeing
6.3 Explain following Yarn dyeing machines
6.3.1 Hank dyeing machine
6.3.2 Cheese dyeing machine
6.3.3 Beam warp dyeing machine
6.4 Fabric dyeing machines
6.4.1 Explain the working principle of Jigger dyeing machines
6.4.2 Explain the working principle of Winch dyeing machines
6.4.3 Explain the construction and working of HTHP Beam dyeing machine
6.4.4 Explain the construction and working of Soft flow jet dyeing machine
6.5 Garment dyeing
6.5.1 Explain the garment dyeing using paddle dyeing machine
6.5.2 Explain the garment dyeing using Rotary dyeing machine
6.5.3 Explain the garment dyeing using Tumbler dyeing machine
6.6 Explain the working principle of 3 bowl padding mangle
6.7 Mention different methods of water extraction from the wet fabric
6.8 Explain the working principle of centrifugal hydro extractor
6.9 Mention different methods of fabric drying

Suggested Student Activities

1. Prepare a chart showing different types of textiles based on fibre type and the type of dye used, auxiliary chemicals used.(PO2,PO3)
2. Collect the samples of grey yarn, bleached , mercerised yarns, coloured yarns (PO2,PO7,PO8,PO9)
3. Collect grey fabric, desized fabric, bleached fabric and mercerised fabric and starch finished fabric, printed and dyed fabrics (PO3,PO5,PO8,PO9)
4. Visit a local dye house (conventional pit type), prepare a list of varieties of dyes applied for cotton and enquire how they are applying for procedure, submit a report.(PO2,PO3,PO6)
5. Prepare a shade card for cotton yarn dyeing with different class of dyes and varying shades(PO2,PO3)
6. Prepare a shade card for cotton fabric dyeing with different class of dyes and varying shades (PO2,PO3)

7. Visit a dye house, identify the hazardous dyes and chemicals banned, educate them not to use. Explain the importance and encourage them to establish ETP. (PO5,PO6)

Recommended Books

1. Science and Technology of Textile dyeing and Coloration – S.P.Mishra
2. Technology of Textile Processing Vol.1 to 5 -- V.A SHENAI
3. Technology of Textile Processing Vol.1 to 2 -- R.S. Prayag
4. Bleaching Dyeing and Chemical Technology of Textile Fibres -- E.R Trotman
5. Textile Chemical Processing – SSM Institute

Suggested e – Learning Resources

1. www.nptel.ac.in
2. www.textilelearner.blogspot.com
3. https://www.onlinetextileacademy.com
4. https://www.slideshare.net
5. https://textilechapter.blogspot.com
6. https://www.onlinetextileacademy.com

CO – PO Attainment Matrix

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CO1		3		1							2,4
CO2		3		2							2,4
CO3		3		2							2,4
CO4		3		3	2	2	2			1	2,4,5,6,7
CO5		3		3							2,4
CO6		3		3	3						2,4,5
Activities		3	3	1	1	1		1			2,3,4,5,6,8
Note: Correlation levels of CO with PO are rated as 1, 2 or 3 and are defined below: 3: Substantial (High), 2: Moderate (Medium), 1: Slight (Low), blank indicates no correlation											

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<tr><td colspan="3">Understanding (U)</td><td colspan="2">3 Marks</td></tr>
<tr><td colspan="3">Application (A)</td><td colspan="2">5 Marks</td></tr>
</table>

Model Question Papers

BOARD DIPLOMA EXAMINATION, (C-18)
MID EXAM-I
Model Question Paper

DTT– III SEMESTER EXAMINATION
TT-304C, BASIC TEXTILE CHEMICAL PROCESSING

*Time :*1 Hours] [Total Marks: 20

PART-A

04X01=04

Instructions : 1. Answer **ALL** questions.
2. Each question carries **ONE** mark.

1. Define Hard Water &Soft Water
2. Define Temporary hardness &Permanent hardness of water
3. Define singeing
4. Define scouring

PART-B

02X03=06

Instructions : 1. Answer any **TWO** questions.
2. Each question carries **THREE** marks.

5 (a) State the requirements of water for chemical processing of textiles

(OR)

(b)State the effect of PH on different textile fibres

6. (a) State the objects of desizing

(OR)

(b)State the objects of scouring

PART-C

02X5=10

Instructions : 1. Answer any **TWO** questions.
2. Each question carries **FIVE** marks.

7. (a)Explain the zeolite process of removing water hardness

(OR)

(b)Tabulate the sequence of chemical preparatory treatments for the textiles made by different fibres

8. (a)Explain the method of continuous oxidative desizing method

(OR)

(b)Explain the principle of hank yarn scouring using tan

BOARD DIPLOMA EXAMINATION, (C-18)
MID EXAM-II
DTT– III SEMESTER EXAMINATION
Model Question Paper
C18-TT-304C BASIC TEXTILE CHEMICAL PROCESSING

*Time :*1 Hours] [Total Marks: 20

PART-A

04X01=04

Instructions : 1. Answer **ALL** questions.
2. Each question carries **ONE** mark.

1 .Define Bleaching.
2 .Define the Mercerising.
3. What is meant by Dye ?
4. What is Pigment ?

PART-B

02X03=06

Instructions : 1. Answer any TWO questions.
2. Each question carries **THREE** marks.

5 .(a) State the objects of Bleaching

(OR)

(b)State the principle of mercerizing cotton

6. (a)List the difference between natural &synthetic dyes

(OR)

(b)State the advantages and disadvantages of natural dyes

PART-C

02X5=10

Instructions : 1. Answer any **TWO** questions.
2. Each question carries **FIVE** marks.

7.(a)Explain continuous scouring and bleaching by using J-Box

(OR)

(b)Explain the process of yarn mercerization

8.(a)Explain general properties of dyes

(OR)

(b)Explain different types of dyeing based on form of textiles

BOARD DIPLOMA EXAMINATION, (C-18)
END SEM EXAMINATION
DTT– III SEMESTER EXAMINATION

304C- BASIC TEXTILE CHEMICAL PROCESSING

*Time :*2 Hours] [Total Marks: 40

PART-A

08X01=08

Instructions : 1. Answer **ALL** questions.
2. Each question carries **ONE** mark.

1. Define hard water & soft water
2. Define Bleaching &Mercerizing
3. Define Dye & Pigment
4. Write general characteristics of dyes
5. What is meant by Bronzing effect
6. Write different types of dyes applied to dyeing of cotton
7. Write yarn dyeing machines
8. Write fabric dyeing machines

PART-B

04X03=12

Instructions : 1. Answer any **FOUR** questions.
2. Each question carries **THREE** marks.

9. (a)State the functions of soaps and detergents in wet processing

   (OR)

   (b) State the causes of Bronzing of sulpur dyes material

10. (a)state the differences between natural & synthetic dye

    (OR)

    (b) Mention the different method of fabric dyeing

11. (a) Mention the after treatments for direct dyed cotton

    (OR)

    (b)Mention the methods of removing bronziness

12. (a)Mention the different methods of water extraction from the wet fabric

    (OR)

    (b)State the advantages and disadvantages of loose cotton dyeing

PART-C

04X5=20

Instructions : 1. Answer any **FOUR** questions.
2. Each question carries **FIVE** marks.

13. (a)Explain the process of singeing by plate, roller and gas.

(OR)

(b)Explain the process stages involved in application of direct dyes

14. (a)Explain the continuous scouring and bleaching by using J-Box

(OR)

(b)explain the working principle of Jigger dyeing machine with a sketch

15. (a)Explain the process stages involved in application of vat dyes

(OR)

(b)Explain the process stages involved in application of Azoic dye

16. a)Explain the construction &working of HTHP beam dyeing machine with a sketch

(OR)

(b) Explain the working principle of 3-bowl padding mangle with a sketch

*****

18TT-305C- FABRIC STRUCTURE AND DESIGN

Course Title :	**Fabric Structure and Design**	Course Code	**18TT-305C**
Semester	**III**	Course group	**Core**
Teaching Scheme in Periods (L/T/P)	**3:1:0**	Credits	**3**
Methodology	**Lecture + Assignments**	Total Contact Hours	**60 Pds**
CIE Marks	**60 Marks**	SEE	**40 Marks**

Legends: L- Lecture, T- Tutorial, P-Practical

Pre Requisites

This course require the knowledge of basic knowledge of principle of fabric manufacture on a power loom. Primary and secondary motions of a loom

Course Outcomes

At the end of the course, student will have the ability to

S.No	Course Outcome	Cognitive Levels	Teaching Periods
CO1	Detect the fabric formed by Plain weave	**R**	**9**
CO2	Recognise the fabric formed by Twill weave and its derivatives	**R**	**9**
CO3	Describe the Towelling fabrics	**R /U**	**9**
CO4	Recognise the Beford cords	**R / U**	**9**
CO5	Recognise the Welts and Piqué fabrics	**U**	**12**
CO6	Recognize the Extra Thread figuring fabrics	**U**	**12**
	Total Periods		**60**

Course Contents

1. Introduction ***Duration: 9 Periods (L:7 – T:2)***

Characterizing elements of woven fabric -elements of woven fabric which characterize the fabric - basic terms - Design, draft, denting plan and lifting plan-method of weave representation on a plain paper -Classification of the weaves of woven fabric structure -different types of drafts by using simple designs-general principle of constructing draft -importance of reed selection in weaving-different approaches to ornamentation of fabrics-different methods of ornamenting fabrics

2. Plain weave and its Derivatives ***Duration: 9 Periods (L: 7– T:2)***

Design, draft and lifting plan of plain weave.-characteristics of plain weave -different ways of ornamenting plain weave without modifying weave -construction, weaving arrangement, typical

quality particulars, characteristics and -applications of Warp Rib weaves.-Weft Rib weaves.-Matt weaves.-construction particulars and characteristics of Poplin and Repp fabrics-detailed classification of plain cloths based on construction, weight, threads set, weave, cover factor--quality particulars, characteristics and end use products of -Approximately square plain cloth -Warp faced plain cloth -Weft faced plain cloth -Voile fabrics

3. Twill Weave and Allied weaves ***Duration: 9 Periods (L: 7– T: 2)***

Characteristics of twill weaves -classification of twill weaves -end use products of twill weaves -Construction of the design, draft and lifting plan for following continuous twills -Weft faced-Warp faced -Balanced -angle of twill and Direction of twill.-factors that determine the prominence of twill weaves-constructional --procedure of following Modifications of twill weaves -Re arranged twills -Transposed twills--Combined twills -Steep and flat twills -Pointed / wavy / zig zag twills -Diamonds and diapers -twills -Broken twills.-Skip twills -Herringbone twills.-twist and twill interaction on appearance of fabric.

4. Compound Weaves ***Duration: 9 Periods (L: 7 – T:2)***

Construction of weft sateen weaves -construction of warp satin weaves Stages of construction, characteristics, quality particulars and end use -products of following weaves -Honey comb -Brighton honey comb -Huck – a- back-Mock leno -difference between ordinary honeycomb and Brighton honey comb -stages of construction, characteristics, typical quality particulars and end use products of crepe weaves based on -Sateen base-Reversing small motif -By superimposing -Combining float weave with plain weave--methods of producing crepe surface

5. Bedford Cords, Welts and Piques ***Duration: 12 Periods (L:9– T:3)***

Bedford cords -Scope / end uses of Bedford cords -Classification of Bedford cords-Standard quality particulars of bed ford cords -construction, weaving arrangement and loom equipment needed for -Simple Bedford cords (Plain and Twill)-Wadded Bedford cords (Plain and twill)-Welts and Piques -Scope / end uses of Welts and Piques -Classification of Welts and Piques-Standard quality particulars of Welts and Piques-Construction, weaving arrangement and loom equipments needed for --Simple Piques-Wadded Piques-differences between Bedford cords and Piques

6. Extra Threaded, Backed and Double Cloths ***Duration: 12 Periods (L9: – T:3)***

Different methods of increasing weight of fabrics -different methods of increasing weight of fabrics-Extra thread figuring -principle of extra thread figuring -different methods of producing extra thread fabrics-the loom equipments needed for extra thread fabrics -different methods of disposing surplus extra threads -constructional details, standard quality particulars and end use products of extra warp figured fabrics-constructional details, standard quality particulars and end use products of extra weft figured fabrics-differences between extra warp and extra weft figuring -Backed fabrics -steps in construction of warp backed fabrics-State the advantages and disadvantages of warp backed fabrics-steps in construction of weft backed fabrics -differences between warp backed and weft backed cloths-differences between backed fabrics and extra thread figured fabrics

Classification of double cloths.-principles of producing different classes of double cloths -criteria for selection of face and back threads -method of construction of simple -self stitched double cloths--method of construction of centre stitched double cloths -method of construction of wadded double cloths -method of construction of inter changeable double cloths -differences between backed fabrics and double cloths -applications of double cloths

Specific Learning Outcomes

1.0 Introduction to Fabric Structure and Analysis

1.1 Write basic operations in woven fabric production
1.2 Explain the elements of woven fabric which characterize the fabric
1.3 Show the method of weave representation on a plain paper
1.4 Define elements of fabric structure - Design, draft, denting plan and lifting plan

1.5 Explain the procedure of constructing draft and finding number of heald shafts
1.6 Explain different types of drafts by using simple designs
1.7 Explain the procedure of constructing peg plan
1.8 State the importance of reed selection in weaving
1.9 Relation between design, draft and lifting plan
1.10 Classify the weaves of woven fabric structure
1.11 Explain different methods of ornamenting fabrics

2.0 Plain weave and its derivatives

2.1 Draw Design, draft and lifting plan of plain weave.
2.2 Draw the interlacement diagram of plain weave
2.3 Draw the cross sectional view of plain weave
2.4 Explain the characteristics of plain weave
2.5 Explain different ways of ornamenting plain weave without modifying weave
2.6 Give detailed classification of plain clothes based on construction, weight, threads set, weave, cover factor
2.7 Explain construction, weaving arrangement, typical quality particulars, characteristics and applications of
- 2.7.1 Warp Rib weaves
- 2.7.2 Weft Rib weaves
- 2.7.3 Matt weaves

2.8 State the construction particulars and characteristics of standard plain woven fabrics
2.9 Mention the quality particulars, characteristics and end use products of
- 2.9.1 Approximately square plain cloth
- 2.9.2 Warp faced plain cloth
- 2.9.3 Weft faced plain cloth
- 2.9.4 Voile fabrics

3.0 Twill weave and its derivatives

3.1 State the characteristics of twill weaves
3.2 Give the classification of twill weaves
3.3 Mention the end use products of twill weaves
3.4 Construct the design, draft and lifting plan for following continuous twills
- 3.4.1 Weft faced
- 3.4.2 Warp faced
- 3.4.3 Balanced

3.5 Define the angle of twill and Direction of twill.
3.6 State the factors that determine the prominence of twill weaves
3.7 Explain the constructional procedure of following Modifications of twill weaves
- 3.7.1 Re arranged twills
- 3.7.2 Transposed twills
- 3.7.3 Combined twills
- 3.7.4 Steep and flat twills
- 3.7.5 Pointed / wavy / zig zag twills
- 3.7.6 Diamonds and diapers twills
- 3.7.7 Broken twills.
- 3.7.8 Skip twills
- 3.7.9 Herringbone twills.

3.8 Explain the twist and twill interaction on appearance of fabric.
3.9 Standard and commercial twill weaves

4.0 Sateen, Satin and Compound Weaves

4.1 Explain the construction of weft sateen weaves based on move numbers
4.2 Explain the construction of warp satin weaves based on move numbers
4.3 Draft and lifting plan for sateen and satin weaves
4.4 Explain the stages of construction, characteristics, quality particulars and end use products of following weaves
- 4.4.1 Honey comb
- 4.4.2 Brighton honey comb
- 4.4.3 Huck – a- back
- 4.4.4 Mock leno

4.5 State the difference between ordinary honeycomb and Brighton hone comb
4.6 Explain the stages of construction, characteristics, typical quality particulars and end use products of crepe weaves based on
- 4.6.1 Sateen base
- 4.6.2 Reversing small motif
- 4.6.3 By superimposing
- 4.6.4 Combining float weave with plain weave

4.7 List different methods of producing crepe surface
4.8 Develop distorted thread effects
4.9 Write different principles of colour and weave effects
4.10 Explain different examples of colour and weave effects

5.0 Bedford cords , Welts and Piques

5.1 Bedford cords
- 5.1.1 Scope / end uses of Bedford cords
- 5.1.2 Classification of Bedford cords
- 5.1.3 Standard quality particulars of bed ford cords
- 5.1.4 Explain the construction, weaving arrangement and loom equipment needed for
  - 5.1.4.1 Simple Bedford cords (Plain and Twill)
  - 5.1.4.2 Wadded Bedford cords (Plain and twill)
  - 5.1.4.3 Cross sectional view of simple Bedford cords
  - 5.1.4.4 Cross sectional view of wadded Bedford cords

5.2 Welts and Piques
- 5.2.1 Mention the Scope / end uses of Welts and Piques
- 5.2.2 Give the Classification of Welts and Piques
- 5.2.3 State the Standard quality particulars of Welts and Piques
- 5.2.4 State the difference between welt and pique
- 5.2.5 Explain the Construction of following weaves
  - 5.2.5.1 Simple Piques and welts
  - 5.2.5.2 Wadded Piques and welts
  - 5.2.5.3 Draw Cross sectional view of welt and pique structures
- 5.2.6 Special requirements of during weaving process for development of welts and piques
- 5.2.7 Explain the differences between Bedford cords and Piques

6.0 Extra Threaded, Backed fabrics and Double Cloths

6.1 Mention different methods of increasing weight of fabrics
6.2 Explain different methods of increasing weight of fabrics
6.3 Extra thread figuring
- 6.3.1 State the principle of extra thread figuring
- 6.3.2 Mention different methods of producing extra thread fabrics
- 6.3.3 Mention the loom equipments needed for extra thread fabrics
- 6.3.4 Mention different methods of disposing surplus extra threads

6.3.5 Explain the constructional details, standard quality particulars and end use products of extra warp figured fabrics
6.3.6 Explain the constructional details, standard quality particulars and end use products of extra weft figured fabrics
6.3.7 Explain the differences between extra warp and extra weft figuring

6.4 Backed fabrics
6.4.1 Explain the steps in construction of warp backed fabrics
6.4.2 State the advantages and disadvantages of warp backed fabrics
6.4.3 Explain the steps in construction of weft backed fabrics
6.4.4 Explain the differences between warp backed and weft backed cloths

6.5 Double cloths
6.5.1 Give the classification of double cloths.
6.5.2 Explain the principles of producing different classes of double cloths
6.5.3 Mention the criteria for selection of face and back threads
6.5.4 Explain the method of construction of simple or self-stitched double cloths
6.5.5 Explain the method of construction of centre stitched double cloths
6.5.6 Explain the method of construction of wadded double cloths
6.5.7 Explain the method of construction of inter changeable double cloths
6.5.8 Explain the differences between backed fabrics and double cloths
6.5.9 State the applications of double cloths

Suggested Student Activities

1. Take a pick finding glass and observe fabrics to see the pattern of warp and weft interlacement and draw the interlacement pattern on a graph paper (PO2,PO4)
2. Prepare a painted chart showing different weaves (PO2)
3. Collect some plain woven fabrics of different thread density and submit with samples pasted on a chart (PO2,PO8,PO9)
4. Prepare a samples of woven structure (different weaves) on a wooden frame using plastic (nylon / polypropylene) threads(PO2,PO3)
5. Collect a fabrics of Bedford cord, welts, backed fabrics, observe the structural features and submit the samples and observation report (PO2)
6. Collect extra thread figured fabric and report your observations(PO2,PO3)
7. Collect a double cloth, observe the fabric and report your observations(PO2,PO3)
8. Collect different kind of towels , observe for general features and submit a report (PO2,PO3)
9. Collect photographs of different weaves from the internet and present it by power point (PO4,PO9,PO10)

Recommended Books

1. Fabric Structure and Design – Gokarneshan.N
2. Fabric Structure and Design - J. Hayavadana
3. Watson’s Textile design and Colour - Grosicki .
4. Watson’s Advanced Textile design - Grosicki .
5. Grammar of Textile Design - Nisbet

Suggested E-Learning References

1. www.nptel.ac.in
2. www.textilelearner.blogspot.com
3. www.fibre2fashion.com
4. https://www.onlinetextileacademy.com
5. https://www.slideshare.net
6. https://textilechapter.blogspot.com
7. https://www.onlinetextileacademy.com

CO-PO Mapping Matrix

Course: Fabric structure and design											
Course Outcomes	Program Outcomes										Mapped POs
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	
CO1	1	3	1	1							1,2,3,4
CO2		3	1		1						2,3,4
CO3		3	1		1						2,3,4
CO4		3	1		1						2,3,4
CO5		3	1		1						2,3,4
CO6		3	1							1	2,3,10
Activities		3	3	1				1	1	1	2,3,4,8,9,10

Note: Correlation levels of CO with PO are rated as 1, 2 or 3 and are defined below:
3: Substantial (High), 2: Moderate (Medium), 1: Slight (Low), blank indicates no correlation

Blue print of Marks and Questions for MSE and SEE

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<tr><td>Sl.No</td><td>Unit Name</td><td colspan="3">R</td><td>U</td><td>A</td></tr>
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18TT-306P- YARN PREPARATORY LAB PRACTICE

Course Title : Yarn Preparatory Lab Practice	Course Code : 18TT-306P
Semester : III	Core / Elective : Core
Teaching Scheme in Periods (L/T/P): 15:0:30	Credits : 1.5
Methodology : Lecture + Practical	Total Hours : 60
CIE : 60 Marks	SEE : 40 Marks

Pre Requisites

This course requires the basic knowledge of machines used for opening and cleaning

Course Outcomes

The course should enable the student to

	Course Outcome	Linked Experiment	Periods
CO1	Identify the parts of opening and cleaning machines in the blow room	1 – 4	**12**
CO2	Identify the parts of carding machine and demonstrate the functions	5-7	**9**
CO3	Identify the parts of draw frame and demonstrate the functions	8-10	**9**
CO4	Identify the parts of combing machine and demonstrate the functions	11-13	**9**
CO5	Identify the parts of Simplex machine and demonstrate the functions	14-15	**6**
			45

Specific Skills to be developed

Intellectual Skills

1. Identify the machines and their parts in Blow room
2. Select settings of various machines in blow room.
3. Select various machines for particular mixing.

Motor Skills

1. Draw the sketches of Blow room Machines and label the setting points
2. Identify the parts of blow room machines.

List of Experiments

Experiments in Blow room

1) Draw the diagram showing passage of material through Mixing Bale Opener / Automatic Bale Opening Machine and identify the parts (3)
2) Draw the diagram showing passage of material through Auto mixer / Unimix / Multi-Mixer and Identify the parts (3)
3) Draw the diagram showing passage of material through any one of the coarse cleaning machines and identify parts and functions (3)
4) Draw the diagram showing passage of material through any one of the fine and intensive cleaning machines and identify the parts and their functions (3)

Experiments in Carding

5) Draw line diagram of carding machine and identify major parts and the direction of rotation and their functions (6)
6) Draw gearing diagram of carding machine and find out the speeds of main parts and calculate draft and production constant. (3)
7) Draw the line diagram of a carding machine and identify the setting places(3)

Experiments in Draw frame

8) Draw the line diagram of Draw frame and identify the speeds (3)
9) Draw the gearing diagram of draw frame and obtain the speeds of different drafting rollers and creel roller (3)
10) Draw the gearing diagram of draw frame and obtain the All Drafts and Draft Constants and production constant (3)

Combing Experiments

11) To draw a line diagram showing the passage of material on a Sliver Lap machine, identify the parts, calculate the speeds of all rotating parts and total draft (3)
12) To draw a line diagram showing the passage of material on a Ribbon Lap machine, identify the parts, calculate the speeds of all rotating parts and total draft (3)
13) To draw a line diagram showing the passage of material on a Comber, identify the parts, calculate the speeds of all rotating parts, total draft and production constant (3)

Experiments in Simplex

14) Draw a gearing diagram showing the drives, calculate the speeds of all rotating parts, total draft, twist constant and production constant speed frame (3)
15) Assembling and dissembling of drafting system and twisting system of a Speed frame (3)

References

1. W. Klein - Technology of Short Staple Spinning Vol. I - The Textile Institute Manchester.
2. W. Klein - The Practical Guide To Opening and Carding Vol. 2.- The Textile Institute Manchester.
3. W. Klein - The Practical Guide To Combing and Drawing Vol. 3- The Textile InstituteManchester.
4. W. S. Taggart.- Cotton Spinning Vol. I - Macmillan and Co. Ltd.
5. T. K. Pattabhiram - Essential Element of practical Cotton Spinning.- Somaiya Publication Pvt.Ltd. Mumbai.
6. T. K. Pattabhiram - Essential Facts in Cotton Spinning.- Somaiya Publication Pvt.Ltd. Mumbai.

Suggested e – Learning Resources

1. www.nptel.ac.in
2. www.textilelearner.blogspot.com
3. www.fibre2fashion.com
4. https://www.onlinetextileacademy.com
5. https://www.slideshare.net
6. https://textilechapter.blogspot.com
7. https://www.onlinetextileacademy.com

Course: Yarn Preparatory Lab											
Course Outcomes	Program Outcomes										Mapped POs
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	
CO1		3	2	2							2,3,4
CO2		3	2	2							2,3,4
CO3		3	2	2							2,3,4
CO4		3	2	2							2,3,4
CO5		3	2	2							2,3,4
Note: Correlation levels of CO with PO are rated as 1, 2 or 3 and are defined below: 3: Substantial (High), 2: Moderate (Medium), 1: Slight (Low), blank indicates no correlation											

18TT-307P- BASIC FABRIC MANUFACTURE LAB PRACTICE

Course Title : Basic Fabric Manufacture Lab	Course Code : 18TT-307P
Semester : III	Core / Elective : Core
Teaching Scheme in Periods (L/T/P): 15:0:30	Credits : 1.5
Methodology : Lecture + Practical	Total Hours : 60
CIE : 60 Marks	SEE : 40 Marks

Pre Requisites

This course requires the basic knowledge of principle of fabric formation and basic mechanism of power loom

Course Outcomes

	Course Outcome	Periods	Linked Experiment
CO1	Identify the parts of warping, winding and sizing machine,	15	1,2,3,4,5
CO2	Identify the parts of primary mechanism of power loom	15	6,7,8,9,10
CO3	Identify the parts of secondary motions of a loom	15	11,12,13,14,15
		45	

Specific Skills to be developed

Intellectual Skills

1. Draw sketches showing various motions of a loom.
2. Identify the parts of power loom

Motor Skills

3. Set and time various motions of loom.
4. Operate power loom for production of different fabrics
5. .

`List of Experiments

Weaving Preparatory

1) Identification of major parts of Beam warping machine and writing their functions
2) Identification of major parts of Sectional Warping machine and writing their functions
3) Preparation of drawing and denting and Practice of drawing and denting
4) Identification of major parts of Sizing machine and writing their functions
5) Identification of major parts of Automatic pirn winding machine

Primary motions of a loom

6) Identification of constructional parts of plain power loom , Dissembling and assembling of the parts
7) Dismantling and assembling of Tappet shedding mechanism and identify the functional parts of the mechanism
8) Dismantling and assembling of Over Pick mechanism and identify the functional parts of the mechanism
9) Dismantling and assembling of Side lever under pick mechanism and identify the functional parts of the mechanism
10) Dismantling and assembling of Beat up mechanism and identify the functional parts of the mechanism

Secondary motions of a Loom

11) Dismantling and assembling of negative let off motion
12) Dismantling and assembling of positive let off motion
13) Dismantling and assembling of 7 wheel take up motion
14) Dismantling and assembling of positive take up motion
15) Dismantling and assembling of Anti crack mechanism

Suggested student activities

1. Preparation of charts for primary motions of a loom
2. Collection of Samples from the Industry / Local shops / Domestic fields
3. Collection of small machine parts / accessories from the industry
4. Collection of Brochures from the Industry
5. Analysis of data obtained
6. Collection of information from the library / Journals
7. Collection of Information and photographs from the online resources

References

1. M.K. Talukdar - Winding and Warping
2. R. Sengupta - Yarn Preparation Vol. I & II - Popular Publications, Mumbai
3. N.N. Banerjee Weaving Mechanism Vol. I &II- Textile Book House, 29,Krishnath Road, Behrampore,742 101(W.B.)
4. R. Marks A.T.C. Robinsons - Principles of Weaving -Textile Institute, Manchester(U.K.)
5. K.T. Aswani - Plain Weaving Motions - Mahajans Publishers,Ahmedabad
6. Hasmukhrai - Fabric Forming - SSM Institute of TextileTechnology, Tamilnadu
7. M.K. Talukdar,P.K. Shriramulu,D.B. Ajgaonkar - Weaving Machines,Mechanisms, Management.- Mahajan Publishers Pvt.Ltd.,Ahmedabad

Suggested e- Learning Resources

1. www.nptel.ac.in
2. www.textilelearner.blogspot.com
3. www.fibre2fashion.com
4. https://www.onlinetextileacademy.com
5. https://www.slideshare.net
6. https://textilechapter.blogspot.com
7. https://www.onlinetextileacademy.com

Course: Fabric Manufacture Lab											
Course Outcomes	Program Outcomes										Mapped POs
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	
CO1		3	3	2							2,3,4
CO2		3	3	2							2,3,4
CO3		3	3	2							2,3,4
Note: Correlation levels of CO with PO are rated as 1, 2 or 3 and are defined below: 3: Substantial (High), 2: Moderate (Medium), 1: Slight (Low), blank indicates no correlation											

18TT-308P- BASIC TEXTILE CHEMICAL PROCESSING LAB PRACTICE

Course Title : Basic Textile Chemical Processing Lab Practice	Course Code : 18TT-308P
Semester : III	Core / Elective : Core
Teaching Scheme in Periods (L/T/P): 15:0:30	Credits : 1.5
Methodology : Lecture + Practical	Total Hours : 60
CIE : 60 Marks	SEE : 40 Marks

Pre Requisites

This course requires the basic knowledge of sequence of chemical preparatory and their functions.

Course Outcomes

	Course Outcome	Periods	Linked Experiment
CO1	Prepare the cotton hank / grey fabric for colouration	**9**	1,2,3
CO2	Dye the cotton hank yarn / fabric with water soluble dyes	**6**	4,5
CO3	Dye the cotton hank yarn / fabric with water insoluble dyes	**12**	6,7,8,9
CO4	Dye the fabric on jigger and winch dyeing machines	**9**	10,11,12
CO5	Operate jet dyeing machine	**9**	13,14,15
		45	

Specific Skills to be developed

Intellectual Skills

3. Understand fabric preparation processes
4. Understand process of dyeing cotton.
5. Learn after treatments.
6. Learn dyeing machine.

Motor Skills

7. Dyeing if cellulosic fibre with different dyes.
8. To operate dyeing machine.

List of Experiments

Preparation of cotton for dyeing

1) Desizing of cotton hank / fabric (3)
2) Scouring of cotton hank / fabric (3)

3) Bleaching of cotton hank / fabric (3)

Dyeing of cotton in laboratory dye bath

4) Dyeing of Cotton (Hank and Fabric) direct dyes (3)
5) Dyeing of cotton (Hank and Fabric) with reactive dyes (3)
6) Dyeing of cotton (Hank and Fabric)with sulphur dyes (3)
7) Dyeing of cotton (Hank and Fabric)with Vat dyes (3)
8) Dyeing of cotton (Hank and Fabric) with azoic dyes (3)
9) Dyeing of cotton (Hank and Fabric) with any one natural dye (3)

Dyeing machinery

10) Practice of Dyeing on yarn package dyeing machine (3)
11) Practice of dyeing on Jigger dyeing machine (3)
12) Practice of dyeing on Winch dyeing machine (3)
13) Practice of continuous dyeing using padding Mangle (3)
14) Practice of dyeing polyester on Jet dyeing machine (3)
15) Practice of dyeing Garments on Rotary drum / Tumbler (3)

Reference

1. Technology of Textile Processing Vol.1 to 5 -- V.A SHENAI
2. Technology of Textile Processing Vol.1 to 2 -- R.S. Prayag
3. Bleaching Dyeing and Chemical Technology of Textile Fibres -- E.R Trotman
4. Textile Chemical Processing – SSM Institute

E Learning Resources & Suggested websites

1. www.nptel.ac.in
2. www.textilelearner.blogspot.com
3. www.fibre2fashion.com
4. https://www.onlinetextileacademy.com
5. https://www.slideshare.net
6. https://textilechapter.blogspot.com
7. https://www.onlinetextileacademy.com

CO-PO Mapping Matrix

Course: Basic Textile Chemical Processing Lab											
Course Outcomes	Program Outcomes										Mapped POs
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	
CO1		3	2	1							2,3,4
CO2		3	2	1							2,3,4
CO3		3	2	1							2,3,4
CO4		3	2	1							2,3,4
CO5		3	2	1							2,3,4
Note: Correlation levels of CO with PO are rated as 1, 2 or 3 and are defined below: 3: Substantial (High), 2: Moderate (Medium), 1: Slight (Low), blank indicates no correlation											

18TT-309P- BASIC FABRIC STRUCTURE AND DESIGN LAB PRACTICE

Course Title : Basic Fabric Structure and Design Lab Practice	Course Code : 18TT-309P
Semester : III	Core / Elective : Core
Teaching Scheme in Periods (L/T/P): 15:0:30	Credits : 1.5
Methodology : Lecture + Practical	Total Hours : 60
CIE : 60 Marks	SEE : 40 Marks

Pre Requisites

This course requires basic knowledge of leaving, shedding and picking mechanisms and how the warp and weft are interlaced in a fabric.

Course Outcomes

	Course Outcome	Linked Experiment	Periods
CO1	To study the fundamentals of fabric structure and plain weave	1-4	**12**
CO2	Analyse the fabrics with twill based weaves and produce the heald plan and denting plan	5-8	**12**
CO3	Analyse the towelling fabrics for weave pattern and produce the heald plan and denting plan	9-11	**9**
CO4	Analyse the fabrics with compound weaves and produce the heald plan and denting plan	12-14	**9**
CO5	Analyse the extra threaded fabrics and double cloths and produce the heald plan and denting plan	15	**3**
			45

Specific Skills to be developed

Intellectual Skills

1. Understand the concept of weave, draft, denting order and lifting plan.
2. Understand the fundamentals of fabric structure.

Motor Skills

3. Develop the elementary fabric structure on point paper.
4. Mark different fancy structures and color & weave effects on point paper.
5. Mark the Heald Plan and Reed Plan for a Weaver

List of Experiments

A. Plain weave and its derivatives

1) Analysis of a given plain woven fabric
2) Analysis of a given warp rib woven fabric
3) Analysis of a given weft rib woven fabric
4) Analysis of a given matt woven fabric

B. Twill weave and its derivatives

5) Analysis of a twill woven fabric -1
6) Analysis of a twill woven fabric -2
7) Analysis of a given sateen / satin woven fabric

C. Towelling fabrics

8) Analysis of Honey comb woven towelling fabric
9) Analysis of Mock leno woven towelling fabric
10) Analysis of Huck a Back woven towelling fabric

D. Compound weaves

11) Analysis of crepe fabric
12) Analysis of Extra warp threaded fabric
13) Analysis of Extra weft threaded fabric

E. Other structures

14) Analysis of Bedford cord fabric
15) Analysis of double cloths

References

1. Textile design and colour – Whatson
2. Advanced Textile Design – Whatson
3. Fabric Structure and Design – Nisbeth
4. Fabric structure and design – Hayavadana J
5. Fabric Structure – Gokarnesan

Suggested e- Learning Resources

1. www.nptel.ac.in
2. www.textilelearner.blogspot.com
3. www.fibre2fashion.com
4. https://www.onlinetextileacademy.com
5. https://www.slideshare.net
6. https://textilechapter.blogspot.com
7. https://www.onlinetextileacademy.com

CO-PO Mapping Matrix

Course: Basic Fabric Structure Lab											
Course Outcomes	Program Outcomes										Mapped POs
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	
CO1		3	1	1							2,3,4
CO2		3	1	1							2,3,4
CO3		3	1	1							2,3,4
CO4		3	1	1							2,3,4
CO5		3	1	1							2,3,4
Note: Correlation levels of CO with PO are rated as 1, 2 or 3 and are defined below: 3: Substantial (High), 2: Moderate (Medium), 1: Slight (Low), blank indicates no correlation											

Suggested Other / General Activities for Skill Up gradation

1. Yoga and Meditation
2. Swacha Bharat and Swacha Telangana
3. Plantation
4. Reports / Debate / Street Campaign / Street show / Quiz / Group discussion / Seminar
   a) Protecting Environment
   b) Conservation of Water and other natural resources
   c) Our Social responsibilities
   d) Social Services
   e) Use of Technology
   f) Nutritional food and Health
   g) Traffic Rules and Road Safety
   h) Media

Communication Skills and Life Skills

Course Title	**Communication Skills and Life Skills**	Course Code	**18 Common 310 P**
Semester	**III**	Course Group	**Foundation**
Teaching Scheme in Periods- L: T:P	**1:0:2**	Credits	**1.5**
Methodology	**Lecture + Practical**	Total Contact Periods	**45**
CIE	**60 Marks**	SEE	**40 Marks**

Rationale:

This course is designed to impart communication skills and life skills to the students of diploma which will help them a great deal in personal and professional fronts.

Prerequisites:

This course requires the basic knowledge of vocabulary, grammar, and four language learning skills, viz. Listening, Speaking, Reading and Writing.

Course Outcomes:

	At the end of the course the students will have the ability to:
Listening Skills	Identify the main or the central idea. Listen for specific details. Learn the pronunciation.
Communication Skills – I	Learn relevant vocabulary to make introductions. Learn to introduce oneself in formal and informal situations. Learn vocabulary and expressions useful for describing objects Describe objects
Communication Skills – II	Learn vocabulary to talk about the past Describe the incidents that happened in the past Learn the techniques of organising the matter / content for one-minute speech. Speak fluently and accurately using appropriate body language.
Life Skills – I	Think positively. Develop positive attitude. Overcome negative attitude. Know the importance of setting goals. Set goals using SMART features.

Life Skills – II	Know the reasons for a problem. Learn to overcome problems. Learn the various techniques to solve the problems. Learn to make proper decisions on time. Think 'out of the box'. Learn to be creative. Think innovatively. Think critically.
Life Skills – III	Know how to be a leader. Learn the qualities of a good leader. Learn the qualities of a good team. Learn the advantages and disadvantages of a team. Manage time effectively. Learn various time management techniques. Learn the importance of prioritisation.

CO-PO Matrix

	Course Outcome		**Linked PO**	**Teaching Periods**
CO 1	Listening for main idea and specific details	**R/U/A**	**1, 2, 3, 4, 5,7,8, 9,10**	**9**
CO 2	Introduce oneself and Describe Objects	**R/U/A**	**1,2,3,8,9,10**	**6**
CO 3	Talk about the past and speak fluently for one minute	**R/U/A**	**1,2,3,7,8.9,10**	**6**
CO 4	Develop positive attitude and set short term and long term goals	**R/U/A**	**1,2,3,7,8,9,10**	**6**
CO 5	Learn to solve a problem, make decisions and think innovatively	**R/U/A**	**1,2,3,7,8,9,10**	**9**
CO6	Learn to become a good team member and leader	**R/U/A**	**1,2,3,7,8,9,10**	**9**

Course Contents:

I. Listening Skills **Duration: 9**

1. Listening – I
    - Digital Camera
    - A Dialogue
    - Wild Animal / Human conflict
2. Listening – II
    - A Recipe
    - A Telephone conversation
    - An Interview

II. Communication Skills – I **Duration:6**

3. Introducing Oneself
4. Describing Objects

III. Communication Skills – II **Duration:6**

5. Talking About the Past
6. Just A Minute

IV. Life Skills – I **Duration:6**

7. Attitude
8. Goal Setting

V. Life Skills – II **Duration:9**

9. Problem Solving and Decision-Making Skills
10. Critical Thinking & Creativity

VI. Life Skills – III **Duration:9**

11. Leadership and Teamwork
12. Time Management

Suggested Student Activities:

- Listening Comprehension
- Seminars
- Paper Presentations
- Line ups for introducing oneself
- Describing persons / places / things
- Picture description
- Role Plays
- Dumb charades
- What is in the bag? (Identify the objects)
- Games using Online Dictionaries
- Sharing the information using emails, chats and groups
- Just A Minute
- Writing diary events
- Find a solution to the problem
- Making innovative things through recycling
- Creating advertisements
- Five-minute activities on Life Skills
- Watching videos on life skills and making presentations

Evaluation Pattern:

I. Continuous Internal Examination: 60 Marks

a. **Mid Sem- I** 20 marks
Syllabus:
i. Listening Skills
ii. Communication Skills - I

b. **Mid Sem – II** 20 Marks
Syllabus:
i. Communication Skills - II
ii. Life Skills - I

c. **Internal assessment**: 20 marks

i. Seminars: 10 marks
ii. Assignments: 5 marks
iii. Lab record submission: 5 marks

II. Semester End Examination : 40 Marks

a. Listening: 10 Marks
b. JAM or Role plays: 15 Marks
c. *Viva Voce* on any life skills topic : 15 Marks

References:

1. Flint, Chrisand Jamie Flockhart*Listening: A2 (Collins English for Life: Skills)*Collins. 2013
2. *Brown, Stephen E. English in Everyday Life. McGraw-Hill Education.2008*
3. Mohanraj, Jayashree. *Let Us Hear Them Speak: Developing Speaking-Listening Skills in English*.Sage. 2015
4. Susan Earle – Carlin. *Q Skills for Success: Listening and Speaking 5: Student Book with Online Practice*. Oxford University Press. 2013
5. Kumar, Sanjay and Pushpa Latha. *Communication Skills: A Work Book*.Oxford University Press. 2018
6. Carnegie, Dale.*The Leader in You*. Simon & Schuster: 1995
7. Carnegie, Dale.*The Art of Public Speaking*. Prabhat Prakashan. NewDelhi.2013
8. Kaye, Martin. Goal Setting (Workbook Included): Goals & Motivation: Introduction To A Complete & Proven Step-By-Step Blueprint For Reaching Your Goals (Goal Setting Master Plan 1). Kindle Edition. MK Coaching.2016.
9. West, Steven. Critical Thinking Skills: Practical Strategies for Better Decision making, Problem-Solving and Goal Setting. Kindle Edition.2018
10. Tracy, Brain. Goals. Berret-Koehler PublishersInc. San Francisco. 2017
11. Tracy, Brain. Master your Time Master your Life. Penguin Random House Inc. New York. 2017

Sean Covey . *The 7 Habits of Highly Effective Teens.* Simon and Schuster,2011

E-Learning Resources:

1. http://www.bbc.co.uk/worldservice/learningenglish/youmeus/learnit/learnitv39.shtml
2. https://www.examenglish.com/leveltest/listening_level_test.htm
3. https://www.oxfordonlineenglish.com/listening?utm_referrer=https%3A%2F%2Fwww.google.co.in%2F
4. https://takeielts.britishcouncil.org/prepare-test/free-ielts-practice-tests/listening-practice-test-1
5. https://learnenglish.britishcouncil.org/en/listening
6. https://www.cambridgeenglish.org/learning-english/activities-for-learners/?skill=listening
7. https://www.businessenglishsite.com/business-english-listening.html

BOARD DIPLOMA EXAMINATION (C-18)
THIRD SEMESTER 18 COMMON-310P
COMMUNICATION SKILLS AND LIFE SKILLS
MID SEM - I

Time : 1 Hour **Total Marks: 20 Marks**

Part – A **10 marks**

1. Listening Comprehension: 5 X 2 = 10

(Teacher should give the questions before reading the passage given below)

Florence Nightingale was an English social reformer and a statistician, and the founder of modern nursing. She was born in Florence, Italy, on May 12, 1820. Part of a wealthy family, Nightingale defied the expectations of the time and pursued what she saw as her God-given calling of nursing during the Crimean War. She and a team of nurses improved the unsanitary conditions at a British base hospital, greatly reducing the death count. Her writings sparked worldwide health care reform, and in 1860 she established St. Thomas' Hospital and the Nightingale Training School for Nurses. A revered hero of her time, she died on August 13, 1910, in London. Nightingale came to prominence while serving as a manager and trainer of nurses during the Crimean War, in which she organized care for wounded soldiers. She gave nursing a favorable reputation and became an icon of Victorian culture, especially in the persona of "The Lady with the Lamp" making rounds of wounded soldiers at night.

Questions:

1. Who was Florence Nightingale?
2. When and where was she born?
3. What does the passage convey?
4. When did she pass away?
5. Where did she establish nursing school?

PART- B **10 Marks**

Instruction: Answer any one of the questions in 150 words.

2. How do you introduce yourself formally in an interview?
3. Describe your polytechnic.

BOARD DIPLOMA EXAMINATION (C-18)
THIRD SEMESTER 18 COMMON-310P
COMMUNICATION SKILLS AND LIFE SKILLS
MID SEM - II

Time : 1 Hour **Total Marks: 20 Marks**

Part – A **10 marks**

Instruction: Answer any one of the following questions in 150 words.

1. Describe how you have spent your summer vacation.
2. What are the features of good JAM presentation? What precautions do you before speaking for one minute on the given topic?

Part – B **10 marks**

Instruction: Answer any one of the following questions in 150 words.

3. What is positive attitude? Give examples of positive attitude from your life.
4. Mention your long term goal with SMART features. How do you achieve it?

BOARD DIPLOMA EXAMINATION (C-18)
THIRD SEMESTER 18 COMMON-310P
COMMUNICATION SKILLS AND LIFE SKILLS
SEMESTER END EXAM

Time : 3 Hours **Total Marks: 40 Marks**

Part – A **10 marks**

1. Listen to the following passage and answer the questions give below it**. 5 X 2 = 10**

(Teacher should give the questions before reading the passage)

Answer the following questions after teacher reads the following paragraph.

Prof. Jayashankar was born to Mahalaxmi and Laxmi Kantha Rao on 6th August 1934 in Akkampet village, Warangal District. He was a Doctorate in Economics. He worked as a Vice-Chancellor of Kakatiya University. He worked in many capacities. He was popularly known as "Pedda Sir." He inspired many a people to fight for the cause of Telangana Statehood.

At the age of twelve, Jayashankar refused to sing songs in praise of the Nizam and insisted on singing Vande Mataram instead. As an intermediate student, in 1952, he protested against State Reorganization Committee plan to merge with the Andhra Rashtra. He took an active part in the agitations of "Non – Mulki go back" and " Idli Sambar go back." He took an active part in Telangana separate statehood agitation in 1969 too. In 1999, Prof. Jayashankar started the Telangana Development Forum in the USA which helped to propagate the injustice, discrimination and exploitation meted out to Telangana region and people in the aspects of employment, funds and water resources. He relentlessly put his efforts to end the struggle of Telangana people. He passed away on June 21, 2011. He was 76 years old at the time of his death.

Questions:

1. Where was Prof. Jayashankar born?
2. Why didn't he sing songs in praise of the Nizam?
3. Why did Jayashankar start the Telangana Development Forum in USA?
4. What are the two agitations in which he took an active part?
5. What is the meaning of 'relentlessly'?

Part – B **15 marks**

2. JAM / Role Plays

Part – C **15 marks**

3. Viva Voce on Life Skills topics

RUBRICS FOR ASSESSING STUDENTS ACTIVITIES

		Model Rubrics for collecting the data from the Journals / Library / internet (documents, photographs, animations, videos) and giving power point presentation				
S.No	Sub activity		Performance			
		excellent	Good	Satisfactory		Need improvement
1	Step-1	Data was collected from more than four sources.	Data was collected from three to four sources	Data was collected from two sources.		Data was collected only one source.
2	Step-2	All materials and data required for the activity were accurately prepared based on the data collected independently.	Almost all materials and data required for the activity were accurately prepared based on the data collected independently.	The materials and data required for the activity were ccurately prepared based on the data collected with the help of teacher.		The materials and data required for the activity were inaccurately prepared
3	Step-3	Procedures were outlined in a step-by-step fashion that could be followed by anyone & performed the activity effectively.	Procedures were outlined in a step-by-step fashion, require explanation & performed the activity effectively.	Procedures that outlined were complete with 1 or 2 gaps and require explanation & performed the activity normally		Procedures that outlined were not sequential, & performed the activity in a poor way
4	Step-4	Presented/ explained the information about the activity in logical, interesting sequence with attractive visuals or diagrams.	Presented/ explained the information about the activity in logical sequence with visuals or diagrams.	Presented/ explained the information about the activity in logical sequence with less visuals or diagrams.		Presented/ explained the information about the activity without sequence and visuals or diagrams.
5	Conclusion / summary	Provided a detailed conclusion/ summary clearly based on the data and activity	Provided a conclusion / summary clearly based on the data and activity	Student provided a conclusion/ summary less effectively		Conclusions /summary was not relevant.

Model Rubrics for Visiting the field / Organization and Drawing a Process flow chart						
S.No	Sub activity		Performance			
		Excellent (5)	Very Good (4)	Good (3)	Satisfactory (2)	Need improvement
1	Use of visuals diagrams, symbols, directions	Excellent	Very Good	Good	Satisfactory	Need improvement
2	Correct sequence of machines	Excellent	Very Good	Good	Satisfactory	Need improvement
3	Identified major machines and processes and shown in the chart	Excellent	Very Good	Good	Satisfactory	Need improvement
4	Defined the major process / principle of working	Excellent	Very Good	Good	Satisfactory	Need improvement
5	Participation in the work	Lead the team	Took very active role	Took active role in the team	Participated in the team	Not participated in the team

Model Rubrics for Visiting the Field / Organization and Collection samples, Brochures, Test Report formats, Spare parts						
S. No	Sub activity		Performance			
		Excellent	Very Good (4)	Good	Satisfactory	Need improvement
1	Samples Collection	Data was collected from more than four sources	Data was collected from four sources	Data was collected from three sources	Data was collected from two sources.	Data was collected only one source.
2	Participation in the work	Lead the team	Jointly lead the team	Take active role in the team	Participated in the team	Not participated in the team
3	Relevance of the collection to the subject and use	Excellent	Very Good	Good	Satisfactory	Need improvement
4	Presentation about the collected material	Excellent	Very Good	Good	Satisfactory	Need improvement
5	Conclusion / summary / Usefulness	Excellent	Very Good	Good	Satisfactory	Need improvement

Model Rubrics for carrying out a brief study / experiment / survey on a particular problem or new ideas related to the subject and submitting a report

S. No	Sub activity	Performance			
		Excellent	Good	Satisfactory	Need improvement
1	Data Collection	Data was collected from more than four sources.	Data was collected from three to four sources	Data was collected from two sources.	Data was collected only one source.
2	Standards of Conditions for experiment	Excellent	Good	Satisfactory	Need improvement
3	Usefulness of Study conducted	Excellent	Very Useful	Moderately Useful	Less Useful
4	Presented/ explained about the activity with attractive visuals or diagrams	Excellent	Good	Satisfactory	Need improvement
5	Conclusion / summary	Provided a detailed conclusion/ summary clearly based on the data and activity	Provided a conclusion / summary clearly based on the data and activity	Student provided a conclusion/ summary less effectively	Conclusions /summary was not relevant.

Model Rubrics for carrying out a test on materials on quality and analyzing or comparing the with the actuals / organization test results / norms

S. No	Sub activity	Performance			
		Excellent	Good	Satisfactory	Need improvement
1	Sample selection	Sample is selected randomly and size is as per the standards	A random sample selected from the lot but approximate dimensions	Sample selected from a group / category with no specific size	No specific procedure followed
2	Test method and procedure	Standard test method is followed, calibration of instrument done	Standard test method without calibration	Conventional instrument is used	A rough method is used and just estimated
	Result of the test	Excellent	Good	Satisfactory	Need improvement
3	Correlation of the values with norms	Excellent	Good	Satisfactory	Need improvement
4	Presentation and Conclusion	Excellent	Good	Satisfactory	Need improvement

Note: Separate rubrics may be prepared according to the activity