CURRICULUM

FOR

SECOND SEMESTER

OF

THREE-YEAR

DIPLOMA COURSES

IN

POLYTECHNICS

OF

UNION TERRITORY

OF

JAMMU AND KASHMIR

CURRICULUM

FOR

SECOND SEMESTER

DIPLOMA IN

TEXTILE TECHNOLOGY

SUBJECT STUDY SCHEME(2ND SEMESTER : TEXTILE TECHNOLOGY)

Course Code	Subjects	Time in Hours				CREDITS		
		Theory	Tutorial	Practical	Total	Theory	Practical	Total
BS201	Applied Mathematics-II	3	1	--------	4	4	--------	4
ES202	Introduction to Computers and Information Technology	---	---	4	4	----	2	2
HS205	Soft Skills & Personality Development	3	--------	---	3	3	----	3
HS205	Soft Skills & Personality Development	----	----	2	2	---	1	1
TTPC201	Fundamentals of Textile Machines & Processes	3	--------	---	3	3	---	3
TTPC202	Fundamentals of Textile Machines & Processes Lab	----	----	2	2	-----	1	1
TTPC203	Fabric Structure and analysis-I	3	--------	------	3	3	------	3
TTPC204	Fabric Structure and analysis-I Lab	---	---	2	2		1	1
TTPC205	Weaving preparatory Process	3	--------	------	3	3	------	3
TTPC206	Weaving preparatory Process Lab	---	-----	2	2	---	1	1
	Total	15	1	12	28*	16	6	22

* Note: The remaining hours in a week shall be utilized for sports and other activities like debates, seminar etc.

PROGRAM: THREE YEAR DIPLOMA IN ENGINEERING AND TECHNOLOGY *	
Course Code: **BS201**	Course Title: **Applied Mathematics-II**
Semester: **2nd**	Credit: **4**
Periods Per Week: **4 (L: 03, T: 01, P: 0)**	

(* Common to Architecture Assistantship, Automobile, Civil, Civil(PHE), QSCM, Computer , Electrical , E&C, Medical Electronics, Food Technology, I&C, Leather Technology, Mechanical, Textile Technology, Wood Technology and IT)

COURSE OBJECTIVE:

This course is designed to develop an understanding of basic mathematical and statistical tools which include matrices, determinants, integral calculus and coordinate geometry and the applications of such tools in the field of engineering and technology

COURSE CONTENT

1. Integral Calculus

1.1 Integration as inverse operation of differentiation

1.2 Simple integration by substitution, by parts and by partial fractions (for Linear factors only)

1.3 Evaluation of definite integrals (simple problems)-

Evaluation of $\int_0^{\pi/2} \text{Sin}^n x.\, dx$, $\int_0^{\pi/2} \text{Cos}^n x\, dx$, $\int_0^{\pi/2} \text{Sin}^m x\ \text{Cos}^n x\, dx$

Using formulae without proof (m and n being positive integers only)

2. Coordinate Geometry

2.1 Equation of straight line in various standard forms (without proof), intersection of two straight lines, angle between two lines. Parallel and perpendicular lines, perpendicular distance formula.

2.2 General equation of a circle and its characteristics. To find the equation of a circle, given: Centre and radius, three points lying on it and coordinates of end points of a diameter.

2.3 Definition of conics (Parabola, Ellipse, Hyperbola) their standard equations without proof. Basic problems on conics when their foci, directrices or vertices are given.

3 Matrices and Determinants

3.1 Definition of matrix and its types.

3.2 Addition, subtraction and multiplication of matrices.

3.3 Expansion of Determinants.

4 Statistics

4.1 Measures of Central Tendency: Mean, Median, Mode

4.2 Measures of Dispersion: Mean deviation, Standard deviation

4.3 Basic Concepts of Probability.

COURSE OUTCOME

After the completion of the course the student will be able to:

- evaluate both indefinite and definite integrals by various methods
- identify various points in a 2-D space along with formulation of equations and graphs for different types of lines, circles, ellipses, parabolas etc.
- find the sum, difference and product of two or more matrices,
- evaluate determinants and their relations to matrices
- find the mean, median, mode and other measures of central tendency.
- solve basic problems on probability.

RECOMMENDED BOOKS:

1. R.D Sharma, Applied Mathematics-II.
2. H.K Das, Applied Mathematics.
3. B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, New Delhi, 40th Edition, 2007.
4. S.S. Sabharwal, Sunita Jain, Eagle Parkashan, Applied Mathematics, Vol. I & II, Jalandhar.
5. Comprehensive Mathematics, Vol. I & II by Laxmi Publications, Delhi.
6. Reena Garg & Chandrika Prasad, Advanced Engineering Mathematics, Khanna Publishing House, New Delhi
7. Applied Mathematics-II, Eagle Publications.

UNIT WISE TIME AND MARKS DISTRIBUTION

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	16	35
2	10	20
3	12	25
4	10	20
Total	**48**	**100**

PROGRAM THREE YEAR DIPLOMA IN ENGINEERING AND TECHNOLOGY	
Course Code: **ES202**	Course Title: **Introduction to Computers and Information Technology**
Semester:**2nd**	Credit: **2**
Periods Per Week: **4 (L: 0 T: 0 P: 4)**	

(* Common to Architecture Assistantship, Automobile, Civil, Civil(PHE), QSCM, Computer , Electrical , E&C, Medical Electronics, Food Technology, Garment Technology, I&C, Leather Technology, Mechanical, Textile Design, Textile Technology, Travel and Tourism, MLT, Wood Technology and IT)

COURSE OBJECTIVE

Information technology has great influence on all aspects of our life. Primary purpose of using computer is to make the life easier. Almost all work places and living environment are being computerized. The subject introduces the fundamentals of computer system for using various hardware and software components. In order to prepare diploma holders to work in these environments, it is essential that they are exposed to various aspects of information technology such as understanding the concept of information technology and its scope; operating a computer; use of various tools of MS Office/Open Office using internet etc. form the broad competency profile of diploma holders. This exposure will enable the students to enter their professions with confidence, live in a harmonious way and contribute to the productivity.

COURSE CONTENT

1. **Basics of Information Technology**
   - 1.1. Its concept and scope, applications of IT, ethics and future with information technology.
   - 1.2. Impact of computer and IT in society.
   - 1.3. Computer application in office, book publishing, data analysis, accounting, investment, inventory control, graphics, air and railway ticket reservation, robotics, military, banks, Insurance financial transactions and many more.

2. **Basic Components of Computer System**
   - 2.1. Block diagram of a computer System and Processing of Data.
   - 2.2. Demonstration of computer system viz., Hardware, Software
   - 2.3. Concept of Memory and its various types, Primary and secondary memories (RAM, ROM, Storage Devices etc).

3. **Internet and its Applications**
   - 3.1. Introduction to Internet, its basic working.
   - 3.2. Concept of Email, Social Media, Cloud Computing.
   - 3.3. Basic ideas about IP Address, DNS, URL, Server, Web Browser, LAN etc.

4. Use of Various Basic Data Processing Softwares

4.1. Word Processing (Microsoft Word & Google Docs.)

4.1.1. File Management:

4.1.1.1. Opening, creating and saving a document, locating files, copying contents in some different file(s).

4.1.2. Editing a document:

4.1.2.1. Entering text, Cut, copy, paste using tool- bars

4.1.3. Formatting a document:

4.1.3.1. Using different fonts, changing font size and colour, changing the appearance through bold/ italic/ underlined, highlighting a text, changing case, using subscript and superscript, using different underline methods

4.1.3.2. Aligning of text in a document, justification of document,Inserting bullets and numbering

4.1.3.3. Formatting paragraph, inserting page breaks and column breaks, line spacing

4.1.3.4. Use of headers, footers: Inserting footnote, end note, use of comments

4.1.3.5. Inserting date, time, special symbols, importing graphic images, drawing tools

4.1.4. Tables and Borders:

4.1.4.1. Creating a table,

4.1.4.2. Formatting cells,

4.1.4.3. Use of different border styles, shading in tables,

4.1.4.4. Merging of cells, partition of cells, inserting and deleting a row in a table

4.1.5. Print preview, zoom, page set up, printing options

4.1.6. Using Find, Replace options

4.2. Microsoft-Excel and Google Sheets

4.2.1. Introduction to Spreadsheet Application-Workbook and Worksheets

4.2.2. Working with data and formulas:

4.2.2.1. Addition, subtraction, division, multiplication, percentage and autosum.

4.2.2.2. Format data, create chart, printing chart, save worksheet, creating and formatting of charts and graphs

4.3. Presentation (Microsoft-PowerPoint and Google Slides)

4.3.1. Introduction to PowerPoint - How to start PowerPoint - Working environment: concept of toolbars, slide layout, templates etc. - Opening a new/existing presentation - Different views for viewing slides in a presentation: normal, slide sorter etc.

4.3.2. Addition, deletion and saving of slides.

4.3.3. Insertion of multimedia elements - Adding text boxes, importing pictures, movies and sound, tables and charts etc.

4.3.4. Formatting slides - Text formatting, changing slide layout, changing slide color scheme - Changing background, Applying design template.

4.3.5. Viewing the presentation using slide navigator

COURSE OUTCOME

After the completion of the course the student will be able to:

- Identify the different hardware components and functional units of a Computer system.
- Explain basic concepts and working of internet.
- Create and format word documents by using different word processing software.
- Prepare the spread sheets and the presentation of data in different ways.
- Prepare power point presentations.

RECOMMENDED BOOKS:

1. A First Course in Computer by Sanjay Saxena; Vikas Publishing House Pvt. Ltd-Jungpura, New Delhi
2. Computer Fundamentals by PK Sinha; BPB Publication, New Delhi
3. Fundamentals of Information Technology by Leon and Leon;Vikas Publishing House Pvt. Ltd., Jungpura, New Delhi
4. Basics of Information Technology, by Ishan Publications, Ambala
5. Information Technology for Management by Henery Lucas, 7th edition, Tata McGraw Hill Education Pvt Ltd, New Delhi

UNIT WISE TIME AND MARKSDISTRIBUTION

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	06	10
2	13	20
3	13	20
4	32	50
Total	**64**	**100**

PROGRAM : THREE YEARS DIPLOMA PROGRAM IN TEXTILE TECHNOLOGY	
Course Code : HS 205	Course Title : Soft Skills and Personality Development
Semester : 2ND	Credits: **3**
Periods per week: **(L: 3 T: 0 P: 0)**	

COURSE OBJECTIVE: Soft skills, unlike hard skills that are technical, tangible, measurable, quantifiable and assessable, are practical, imperceptible and subtle qualitative traits that determine the efficacy of human communication at professional and personal levels. While hard skills acquisition can be correlated with one's intelligence quotient (IQ), soft skills development are intricately linked with one's emotional quotient (EQ) and spiritual quotient (SQ). Hard skills can aid an individual secure a position, yet soft skills help the person retain it, achieve excellence and fulfill self-actualization needs. Using academic as well as popular books, the course offers soft skills by integrating them at personal, professional, interpersonal and management levels.

COURSE CONTENT

Unit 1 **(15 hours)**
Personal Skills

Self-Assessment; Identifying Strength & Limitations; Habits, Will-Power and Drives; Developing Self-Esteem and Building Self-Confidence, Significance of Self-Discipline
Understanding Perceptions, Attitudes and Personality Types.
Mind-Set: Growth and Fixed; Values and Beliefs
Motivation and Achieving Excellence; Self-Actualization Need Goal Setting, Life and Career Planning; Constructive Thinking

Unit 2 **(18 Hours)**
Professional Skills

Communicating Clearly: Understanding and Overcoming barriers; Cross gender/Cross Cultural communication, Strategic communication.
Active Listening
Persuasive Speaking and Presentation Skills
Conducting Meetings, Writing Minutes, Sending Memos and Notices
Etiquette: Effective E-mail Communication; Telephone Etiquette
Body Language in Group Discussion and Interview

Unit 3 **(10 Hours)**
Interpersonal Skills

Enhancing Empathy, Showing Sympathy and Dealing with Antipathy; Gaining Trust and Developing Emotional Bonding
Ethics and Etiquettes (Social and Official Settings); Respecting Privacy; Civic Sense and Care for the Environment
Negotiating, Decision-Making, Conflict-Resolution, Five Styles

Emotional Literacy; Assertiveness versus Aggressiveness; Learning to Say "No."; Learning to Appreciate and Give Praise; Presenting Bad News
Humor, Jokes and Anecdotes in Effective Communication

Unit 4 **(5 hours)**
Management Skills

Managing Time and Beating Procrastination
Managing People: Leading and Working with Team (Co-ordination and Co-operation); Developing Accountability, Commitment and Responsibility; Behaving Conscientiously
Managing Stress and Maintaining Positive Outlook
Managing Health, Boosting Memory, Enhancing Study Skills
Managing Money and Love; Balancing Personal and Professional Life

Course Outcome

After completion of the course the student will be able to

- Develop Self Confidence
- Learn attitudes and personality types
- Learn communication skills and etiquettes of communication
- know about interpersonal skills and management skills

REFERENCES

1. Personality Development and Soft Skills, Barun k. Mitra, Oxford Press
2. Business Communication, Shalini Kalia, Shailja Agarwal, Wiley India
3. Cornerstone Developing Soft Skills, Sheffield, Pearson
4. Managing Soft Skills for Personality Development -edited by B.N Ghosh, McGraw Hill India
5.Soft Skills An Integrated Approach to Maximize Personality, Gajendra S.Chauchan, Sangeeta Sharma, Wiley In

UNIT WISE TIME AND MARKS DISTRIBUTION

UNIT NO	TIME (HOURS)	MARKS
01	15	25
02	18	30
03	10	25
04	05	20
TOTAL	**48**	**100**

PROGRAM : THREE YEARS DIPLOMA PROGRAM IN TEXTILE TECHONLOGY	
Course Code : HS 205	Course Title : Soft Skills and Personality Development LAB
Semester : 2ND	Credits: **1**
Periods per week: **2(L: 0 T: 0 P: 2)**	

COURSE OBJECTIVE: Soft skills, unlike hard skills that are technical, tangible, measurable, quantifiable and assessable, are practical, imperceptible and subtle qualitative traits that determine the efficacy of human communication at professional and personal levels. While hard skills acquisition can be correlated with one's intelligence quotient (IQ), soft skills development is intricately linked with one's emotional quotient (EQ) and spiritual quotient (SQ). Hard skills can aid an individual secure a position, yet soft skills help the person retain it, achieve excellence and fulfil self-actualization needs. Using academic as well as popular books, the course offers soft skills by integrating them at personal, professional, interpersonal and management levels.

LIST OF PRACTICALS

1. Thinking Skills Correcting Common Errors in day to day conversation
2. making picture and improving diagram to English word
3. Field Diary and lab record
4. Ice Breaking Activity and Just A Minute Session
5. Speaking from observation and reading
6. Greetings -Apologies, request, social and professional Etiquette Telephone etiquettes
7. Indexing, Footnotes and bibliographic procedure
8. Vocabulary building
9. Report Making
10. Comprehensions

PROGRAM : THREE YEARS DIPLOMA PROGRAM IN TEXTILE TECHNOLOGY	
Course Code : TTPC 201	Course Title : Fundamentals Of Textile Machines & Processes
Semester : 2ND	Credits: **3**
Periods per week: **3(L: 3 T: 0 P: 0)**	

COURSE OBJECTIVE: Knowledge of basic processes is very important for textile students. The process of making yarn helps both Textile Technology/Processing students separately. In case of fabric, technologist uses the knowledge of this subject further for specialized subjects, or to check the requirement of yarn accordingly. A Processing student uses it for matching dye and print on that fabric. This subject provides a brief introduction to various processes.

COURSE CONTENT

Unit 1 **(10 Hours)**

1.1 Flow Chart of Textile Processes

Flow chart of raw material, machines, process and end product for conversion of fibre into yarn. Flow chart of raw material, machines, process and end product for conversion of yarn into woven or knitted fabric, and finished fabrics.

1.2 Opening and cleaning

Objects of mixing and blending. Comparison of mixing with blending. Objects of Blow room. Sequence of modern blow room line. Objects of Carding. Main parts of carding machine.

Unit 2 **(10 Hours)**

2.1 Fibre to Yarn

Objects of Draw frame. Draft and its type. Breaker and finisher draw frame. Objects of Lap former. Objects of Comber. Linking of lap former and comber. Objects of Speed frame and Ring frame. Main parts of Ring frame. Objects of Winding. Parts of Winding machine.

Unit 3 **(08 Hours)**

3.1 Yarn to Woven Fabric

Objects of Warping. Objects of Sizing. Different Sizing ingredients and their functions. Main parts of sizing machines. Objects of Threading and Drawing-in.

Unit 4 **(10 Hours)**

4.1 Weaving

Terminology of Weaving, warp, weft. Passage of material through Loom. Parts of loom. Classifications of loom. Types of motions in loom. Primary, Secondary and auxiliary motions.

Unit 5 **(10 Hours)**

5.1 Knitting

Definitions of Knitting, weft knitting, warp knitting, stitch, course, and wale. Discuss various type of Warp v/ s weft knitting.

5.2 Numbering System

Definition of numbering system. Defining direct system with reference to tex, denier. Defining indirect system with reference to English count. Relationship between tex, denier and English count.

COURSE OUTCOME

After completion of the course the student will be able to

- Execute opening and cleaning of fibre.
- Convert fibre into yarn and yarn into fabric.
- Operate machinery of spinning and sizing process
- Perform weaving and knitting.

RECOMMENDED BOOKS

1. Gohl and Vilensky, "Textile Science" by CBS Publishers and Distributors Delhi.
2. V.A. Shanai, "Introduction to Textile Fibers" by Sevak Publications Mumbai.
3. From Fibre to Fabric" Tata Mc-Graw hill.
4. Jindal & Jindal, "Textile Raw Materials" by Abhishek Publishers Chandigarh.

WEBSITES

1. https://onlinecourses.nptel.ac.in/
2. https://swayam.gov.in/
3. https://textilelearner.net/what-is-textile-basic-textiles/

INSTRUCTIONAL STRATEGY

This is a skill based subject and topics taught in the class should be practiced in the Lab regularly for development of required skills in the students. This subject contains five units equal weight age with hands on practice.

UNIT WISE TIME AND MARKS DISTRIBUTION

UNIT NO	TIME (HOURS)	MARKS
01	10	20
02	10	15
03	08	35
04	10	15
05	10	15
TOTAL	**48**	**100**
PROGRAM : THREE YEARS DIPLOMA PROGRAM IN TEXTILE TECHNOLOGY		

Course Code : **TTPC202**	Course Title : **Fundamentals Of Textile Machines & Processes LAB**
Semester : **2ND**	Credits: **1**
Periods per week: **2(L: 0 T: 0 P: 2)**	

COURSE OBJECTIVE: Knowledge of basic processes is very important for textile students. The process of making yarn helps both Textile Technology/Processing students separately. In case of fabric, technologist uses the knowledge of this subject further for specialized subjects, or to check the requirement of yarn accordingly. A Processing student uses it for matching dye and print on that fabric. This subject provides a brief introduction to various processes.

LIST OF PRACTICALS

1. Process flow chart of conversion of cotton fibre into yarn.
2. Drawing of a modern blow room line.
3. Give main parts of carding machine.
4. Give main parts of comber machine.
5. Give Drafting zone of Speed and Ring Frame.
6. Write sequence of conversion of yarn to woven fabric.
7. Passage of material through loom.
8. Passage of material through sizing machine.
9. Passage of material through flat bed knitting machine.
10. Passage of material through circular bed knitting machine.
11. Calculate the tex for a 1 km yarn weighing 50 gm.
12. Calculate the Denier of a 1 km yarn weighing 50 gm.
13. Calculate the English count of a 1 km yarn weighing 50 gm.

PROGRAM:THREE YEARS DIPLOMA PROGRAM IN TEXTILE TECHNOLOGY	
Course Code : TTPC203	Course Title: Fabric Structure and Analysis – I
Semester : 2ND	Credits: 3
Periods per week: **3 (L: 3 T: 0 P: 0)**	

COURSE OBJECTIVE: Textile Technology students have to work in weaving mills, textile testing houses and fabric quality control centers. They have to perform tasks relating to yarn requirement, design and complete order as per sample, for which knowledge/skills of fabric structure is essential. This subject will help student to understand different weaves from woven fabric samples, calculate weight of warp and weft required, weight of fabric with different dimension.

COURSE CONTENT

Unit 1 **(10 hours)**

1.1 Woven Design Fundamental

Introduction, Representation of woven design- Interlacement diagram, graphical representation of woven fabric structure. Design, weave repeat unit or repeat size. Draft, types of draft-straight, pointed, skip and satin, broken, divided, group. Peg plan or lifting plan. Sectional view and denting plan. Relationship between design, draft, lifting plan and sectional view.

1.2 Plain Weave

Introduction, characteristics and end uses of plain weave. Derivatives of plain weave- warp rib, weft rib and hopsack weave. Ornamentation of plain weave.

Unit 2 **(12 hours)**

2.1 Twill Weave

Introduction characteristics and end use of twill weave. Warp faced twill, weft face twill, right hand end and left hand end twill weave. Derivatives of twill weave- Pointed, waved, herring bone, Broken twill (By breaking at regular interval, by entering and skipping method), elongated and transposed Twill Weave. Balanced and unbalanced twill weave. Factor affecting the prominence of twill weave.

Unit 3 **(10 hours)**

3.1 Satin/ sateen Weave

Introduction characteristics and end use of satin/sateen weave. Regular satin/sateen up to 12 ends. Irregular satin/sateen up to 12 ends.

3.2 Diamond and diaper

Characteristics, end use and comparison of Diamond and diaper. Diamond and diaper design upto 16 picks.

Unit 4 **(09 hours)**

4.1 Honey comb weave

Characteristics, end use and comparison. Ordinary and Brighton honey comb weave up to 16picks. Ordinary honey comb, rectangle design example 12x14 and 14x12.

4.2 Huck-a-Back and Mock Leno

Characteristics of Huck-a – Back and mock leno. Design, end use, and comparison of Huck-a –Back and mock leno.

Unit 5 **(07 hours)**

5.1 Welt and pique- characteristics, end use and comparison, Welt structure- ordinary, weft wadded

5.2 Welt and Pique structure - characteristics, end use and comparison of Welt and pique.

5.3 Bed ford cord - characteristics, end use and comparison with welt. Plain faced bed ford cord (Regular and alternate pick principle) Wadded bed ford cord, Twill faced bed ford cord.

COURSE OUTCOME

After completion of the course the student will be able to

- Create different types of fabric structure
- Construct different types of woven structure and their drafting, lifting and denting plan
- Construct different weaves
- Execute analysis of different weaves

RECOMMENDED BOOKS

1. Z. J. Grosicki, "Watson's Textile Design & Colour" Part-I by Woodhead Publishing Limited.
2. Z. J. Grosicki, "Watson's Advanced Textile Design: Compound woven structures" by Woodhead Publishing Limited.
3. N. Gokarneshan, "Fabric structure and Design" by New age International Publisher.
4. S.S. Satsangi, "Saral Vastra Sangrachna" (Simple Fabric Structure – in Hindi) by M/S Usha Publishers, Shalimar Bagh, Delhi

SUGGESTED WEBSITES

1. https://onlinecourses.nptel.ac.in/
2. https://swayam.gov.in/
3. https://www.youtube.com/channel/UCnPu8vcBvMdV5wtPTxC4uLA
4. https://textilelearner.net/what-is-textile-basic-textiles/

UNIT WISE TIME AND MARKS DISTRIBUTION

UNIT NO	TIME (HOURS)	MARKS
01	10	20
02	12	25
03	10	20
04	09	20
05	07	15
TOTAL	**48**	**100**

PROGRAM: THREE YEARS DIPLOMA PROGRAM IN TEXTILE TECHNOLOGY	
Course Code : TTPC204	Course Title: Fabric Structure and Analysis – I Lab
Semester : 2ND	Credits: 1
Periods per week: 2 **(L: 0 T: 0 P: 2)**	

COURSE OBJECTIVE: Textile Technology students have to work in weaving mills, textile testing houses and fabric quality control centers. They have to perform tasks relating to yarn requirement, design and complete order as per sample, for which knowledge/skills of fabric structure is essential. This subject will help student to understand different weaves from woven fabric samples, calculate weight of warp and weft required, weight of fabric with different dimension.

LIST OF PRACTICALS

1. Representation of woven design- Interlacement diagram, graphical representation of woven fabric structure.
2. Draw from design- draft, lifting plan and sectional view.
3. Draw design from draft, lifting plan and sectional view.
4. To study EPI & PPI using Pick glass
5. To calculate warp and weft count of yarn from given fabric
6. To study warp and weft count from fabric using Beesley balance
7. To calculate weight of warp and weft, weight per sq. meter, warp cover, weft cover and fabric cover of the given plain fabric sample (At least Two Samples).
8. To draw design draft and peg plan and warp color plan of the above sample at 7.
9. To calculate weight of warp and weft, weight per sq. meter, warp cover, weft cover and fabric cover of the given Twill fabric sample (At least Two Samples).
10. To draw design draft and peg plan and warp color plan of the above sample at 10.
11. To calculate weight of warp and weft,weight per sq. meter, warp cover, weft cover and fabric cover of the given Satin/ Sateen fabric sample.
12. To draw design draft and peg plan and warp color plan of the above Sateen/ Sateen sample.
13. To calculate weight of warp and weft, weight per sq. meter, warp cover, weft cover and fabric cover of the given diamond / diaper/ honeycomb fabric sample.
14. To draw design draft and peg plan and warp color plan of the above diamond / diaper/ honeycomb fabric sample.
15. To calculate weight of warp and weft, weight per sq. meter, warp cover, weft cover and fabric cover of the given huck- a – back fabric sample.
16. To draw design draft and peg plan and warp color plan of the above huck-a –back

PROGRAM :THREE YEARS DIPLOMA PROGRAM IN TEXTILE TECHNOLOGY	
Course Code : TTPC205	Course Title: Weaving Preparatory Process
Semester : 2ND	Credits: 3
Periods per week:3 **(L: 3 T: 0 P: 0)**	

COURSE OBJECTIVE: The selection of suitable yarns and the preparation of yarn for weaving have a considerable influence on weaving efficiency. The efficiency of loom shed is highly influenced by the weaving ability of warp and weft yarn which is incorporated by many weaving preparatory processes like Winding, Warping, Sizing and Drawing-in. This subject is to acquaint the students with these processes.

COURSE CONTENT

Unit 1 **(10 hours)**

1.1 Introduction and Warp Winding

Introduction to yarn preparation and its objectives. Sequence of process involved in the preparatory processes. Different types of yarn packages.
Objects of warp winding. Conventional Winding machine and its limitations. Construction detail and working of high speed winding machine. Different types of tensioners. Balloon-breaker and its functions. Various stop motions.

Unit 2 **(10 hours)**

2.1 Modern Winding Machine and Weft Winding

Main features and working of modern winding machines -Auto coner. Study of common faults in warp winding.
Objects of weft winding. Main features of high speed pirn winding machine. Study of common faults in pirn winding

Unit 3 **(10 hours)**

3.1 Warping

Objects of Warping. Different systems of warping and their limitations. Types of creels. Features of ordinary beam warping machine and its limitations. Features of high speed beam warping machine. Working of sectional warping machine and its limitations. Study of common faults in warping.

Unit 4 **(09 hours)**

4.1 Sizing

Objects of sizing. Various methods of sizing. Study of slasher sizing machine and passage of yarn through it. Measuring and marking motion. Method of drying sized warp, comparison of Multi-cylinder and hot air drying. Various types of sizing ingredients and their objects. Various factors on which percentage size take up depends.

Unit 5 **(09 hours)**

5.1 Drawing-in and Calculations

Introduction to drawing-in. Different methods of drawing-in. Precautions to be taken during drawing-in.

Calculation regarding creel capacity. Number of sections, width of sections for sectional warping machine. Calculation of production of Winding, Warping and Sizing machines.

COURSE OUTCOME

After completion of the course the student will be able to

- Execute process of Winding, Warping and Sizing.
- perform as quality controller in preparatory process.
- Calculate productions of different preparatory machines.

RECOMMENDED BOOKS

1. R Sen Gupta, "Yarn Preparation" Vol. I (Popular Prakashan, 1963)
2. R Sen Gupta, "Yarn Preparation" Vol. II
3. R Sen Gupta, " Weaving Calculation" (Mahajan Book Distributor,1990)
4. "Warping and Sizing" Bombay Textile Research Association.
5. "Winding" – Bombay Textile Research Association
6. "Weaving Calculation"- WIRA
7. "Sizing by Ajgaonkar" et.al

SUGGESTED WEBSITES

1. https://onlinecourses.nptel.ac.in/
2. https://swayam.gov.in/
3. https://www.youtube.com/channel/UCnPu8vcBvMdV5wtPTxC4LA
4. https://textilestudycenter.com/

UNIT WISE TIME AND MARKS DISTRIBUTION

UNIT NO	TIME (HOURS)	MARKS
01	10	20
02	10	20
03	10	20
04	09	20
05	09	20
TOTAL	**48**	**100**

PROGRAM :THREE YEARS DIPLOMA PROGRAM IN TEXTILE TECHNOLOGY	
Course Code : TTPC206	Course Title: Weaving Preparatory Process Lab
Semester : 2ND	Credits: 1
Periods per week:2 **(L:0 T: 0 P: 2)**	

COURSE OBJECTIVE: The selection of suitable yarns and the preparation of yarn for weaving have a considerable influence on weaving efficiency. The efficiency of loom shed is highly influenced by the weaving ability of warp and weft yarn which is incorporated by many weaving preparatory processes like Winding, Warping, Sizing and Drawing-in. This subject is to acquaint the students with these processes.

LIST OF PRACTICALS

1. To study the passage of material and working of high-speed winding machine.
2. To study the passage of material and working of auto-coner.
3. To study the common faults in warp-winding, their causes and remedies.
4. To study the passage of material and working of high speed pirn winding machine.
5. To compare different types of creels used in warping.
6. To compare different types of tensioner used in warping.
7. To study the passage of material through direct warping machine.
8. To study the passage of material through sectional warping machine.
9. To study common faults in warping and their remedies.
10. To study the passage of material through slasher sizing machine.
11. To study important parts of the size box.
12. To study the process of drawing-in.