



Rajiv Gandhi Technological University, Bhopal (MP)
B.E. (TX) Textile Engineering
 Revised syllabus and Scheme of Examination effective from July 2007

THIRD SEMESTER

S. No	Course Category	Course Code (New)	Subject	Periods Per Week				Distribution of Marks				
				L	T	P	C	Theory	Practical	Internal Assessment		Total
										MST	TW	
1	BS-5	BE 301	Mathematics - III	3	1	0	4	100	-	20	-	120
2	DC 1	TX 302	Fiber Science I	3	1	0	4	100	-	20	-	120
3	DC 2	TX303	Weaving Preparation	3	1	2	6	100	50	20	30	200
4	DC 3	TX304	Yarn Manufacturing I	3	1	2	6	100	50	20	30	200
5	DC-4	TX305	Fabric manufacturing	3	1	2	6	100	50	20	30	200
6	IT-2	TX306	Java	0	0	4	4	-	50	-	50	100
7	NECC-1	TX307	Self Study	0	0	1	1	-	-	-	30	30
8	NECC-2	TX308	Seminar & Group Discussion	0	0	1	1	-	-	-	30	30
Total				15	5	12	32	500	200	100	200	1000

BS	Basic Sciences	HS	Humanity Sciences
DC	Department Core	DID	Department Inter Disciplinary
IT	Information Technology subjects	NECC	Non Exam Credit Course
MST	Mid Semester Test	TW	Term Work (Session/ Practical)
C	Credits	L	Lecture Hrs
P	Practical Hrs	T	Tutorial Hrs



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FOURTH SEMESTER

S.No	Course Category	Course Code (New)	Subject	Period Per Week				Distribution of Marks				
				L	T	P	C	Theory	Practical	Internal Assessment		Total
										MST	TW	
1.	BS 6	TX 401	Statistics and quality control	3	1		4	100		20		120
2.	HS 2	TX/ME/CM 402	Energy Environment Ethics and Society	3	1		4	100		20		120
3.	DC-5	TX403	Fabric Structure and design-I	3	1	2	6	100	50	20	30	200
4.	DC-6	TX404	Yarn Manufacturing-II	3	1	2	6	100	50	20	30	200
5.	DC-7	TX405	Fiber science II	3	1	2	6	100	50	20	30	200
6.	IT-3	TX 406	CAD in textile	0	0	4	4	-	50	-	50	100
7.	NECC-3	TX 407	Self Study	0	0	1	1	-	-	-	30	30
8.	NECC-4	TX 408	Seminar/Group Discussion etc.	0	0	1	1	-	-	-	30	30
Total				15	5	12	32	500	200	100	200	1000

BS	Basic Sciences	HS	Humanity Sciences
DC	Department Core	DID	Department Inter Disciplinary
IT	Information Technology subjects	NECC	Non Exam Credit Course
MST	Mid Semester Test	TW	Term Work (Session/ Practical)
C	Credits	L	Lecture Hrs
P	Practical Hrs	T	Tutorial Hrs

COURSE CONTENTS

Category	Title	Code	Credits-4C			Theory Papers
Basic Sciences BS-5	Mathematics-III	BE 301	L	T	P	Max Marks-100 Min Marks-35 Duration-3 Hrs
			3	1	0	

Unit 1 Functions of Complex Variables: Analytic functions, Harmonic Conjugate, Cauchy - Riemann Equations, Line integral, Cauchy's theorem, Cauchy's Integral formula, Singular points, Poles and Residues, Residue theorem, Evaluation of Real Integral, Bilinear Transformation.

Unit 2 Numerical Analysis: Difference operators, Errors and Approximations, Interpolation, Inverse interpolation, Numerical differentiation, Numerical Integration by using Simpson's method, Weddel's rule and Gauss legendre open quadrate formula.

Unit 3 Solutions of algebraic and transcendental equations(Regular False, Newton-Raphson, Iterative, Graffe's root squaring methods), Solutions of simultaneous algebraic equations, Solutions of ordinary differential equations (Tailor's Series, Picard's Method, Modified Euler's method, Runge Kutta Method, Predictor-Corrector Method), Solution of Partial differential equation.

Unit 4 Introduction to optimization by linear programming, only two variable problems solution by graphical and simplex method, concept of degeneracy and duality; simple three variable transport and assignment problems and modeling into LPP.

Unit 5 introduction to Q theory and Markovian process, time independent property of exponential distribution, solution of only M/M/1 (∞/∞ /FCFS) Queues; introduction to design of experiments, factorial design, sampling methods, Taguchi Loss Function, robust design methods, variance reduction and six (± 3) σ outliers in quality.

References:

1. Kreyszig E; Advanced Engineering Mathematics; Wiley Eastern Limited.
2. Ramana BV; Higher Engineering Mathematics; TMH
3. Grewal BS; Higher Engineering Mathematics; Khanna Publisher.
4. Taha H; Operations Research an Introduction; PHI
5. Ross; Taguchi techniques for Quality engineering, TMH
6. Spiegel; Theory and problems of probability and statistics; TMH
7. Chandrasekharaiah DS; Engineering Maths Part II & III; Prism Books Pvt.
8. Johnson; Miller and Freund's Probability and statistics for Engineers; PHI.
9. Jaggi, Mathur; Engineering Mathematics; Khanna Publisher.

Course Contents

Category	Title	Code	Credits-4C			Theory Papers
			L	T	P	
DC 1	Fiber Science-I	TX 302	3	1	0	Max.Marks-100 Min.Marks-35 Duration-3hrs.

Unit I General classification of fibres. Structure, properties and uses of cotton. Structure, properties and uses of bast fibers, Structure, properties, uses and brief description of wool and silk fibres.

Unit II Basic concept of polymer, their classification, methods of polymerization, molecular weight-its measurement, distribution and importance.

Unit III Manufacturing process of all important man-made fibres e.g. rayon, nylon, polyester, acrylic, poly-olephins etc. with special reference to melt, dry and wet extrusion principle. Idea about the physical and chemical properties (influence of chemical constituents and different groups present) of above mentioned fibres and their uses.

Unit IV Problems associated with man-made fibres and their methods of rectification. Structure of fibres- basic requirements for fiber formation, concept of order and morphology, molecular packing in crystalline and amorphous regions,

Unit V physical structure of principal natural and man-made fibers . Study of fiber structures-methods of investigating fiber structures e.g. X-ray diffraction, optical and electron microscopy , I R absorption, thermal methods NMR.

References:

1. Shennai VA; Fibre Science.
2. Vaidya Synthetic Fibre
3. Gupta & V. K. Kothari; Manufactured Fibre Technology.
4. Morton & JWS Hearle; Physical Properties of Textile Fibre
5. Murthy HVS; Introduction to Textile Fibre.
6. Moncrieff; Man made Fibres.
7. Gohl and Vilensky LD; Textile Science
8. Fried JR; Polymer Science and Technology
9. Mukhopadhyay SK; Advances in Fibre Science.
10. Mishra SP; A text book of Fibre Science & Technology
11. Jayaprakasam et.al; Fibre Science & Technology.

Course Contents

Category	Title	Code	Credits-6C			Theory Papers
DC 2	Weaving preparation	TX 303	L	T	P	Max.Marks-100 Min.Marks-35 Duration-3hrs.
			3	1	2	

Unit I Object of Winding, classification of winding machines. Different types of Winding machines their uses and limitations, tensioning devices, yarn clearers Types and features classification of yarn faults, yarn traversing devices, yarn stop Motion, ribbon formation causes and method of its elimination. Passage of yarn On slow speed and high speed automatic winding machines.

Unit II Different features of Automatic high speed winding machines, splicing- mechanism and advantages, Various parameters of package and Package build and their relationship, Related calculations.

Unit III Weft Winding - different types, yarn guides and traverse , yarn tension control and Yarn stop motion , auto doffing, bunching, package length and diameter, package Build, winding and binding coil ratio.

Unit IV

Object of warping, classification of warping machines beam warping and sectional Warping measuring motion, stop motions, yarn tensioning, creel types and features, Leasing and beaming, Features of modern high speed warping machines.

Unit V Drawing-in: Manual, automation, knotting and gaiting, Calculations, production, efficiency and waste related to winding and warping processes, Maintenance of the machines studied.

Reference:

1. Talukdar MK; Winding & Warping.
2. Ormerod A; Modern Preparation and Weaving Machinery.
3. BTRA Silver Jubilee Monograph Series; Warping & Sizing
4. BTRA Silver Jubilee Monograph Series; Winding.
5. Sengupta; Weaving Calculation.
6. Ormerod & Walter S. Sondhelm; Weaving Technology and Operations.

List of Experiments (Expandable):

1. Study of cheese & cone winding m/c,
2. Winding tensions and yarn clearer gauge Levels,
3. Details study of non automatic weft winding machines.
4. Detail study of Warping, adjusting points and Drawing-in operations.

Course Contents

Category	Title	Code	Credits-6C			Theory Papers
DC 3	Yarn Manufacturing I	TX 304	L	T	P	Max.Marks-100 Min.Marks-35 Duration-3hrs.
			3	1	2	

Unit I Ginning of cotton fibres, Different types of ginning, roller ginning, saw ginning and importance of the ginning to eliminate the contamination in the yarn, the scenario of Indian ginning industries.

Unit II Blow Room, Objects of blow room. Principles of opening , cleaning and blending . Preparation of uniform lap, principal of blow room machines and blow room lines , recent developments in blow room machinery including automatic bale openers , blenders and chute feed systems, optical color material detectors, dust removal etc. Assessment of blow room performance, environmental condition, man-made fibre processing.

Unit III Calculation of blow room production, Process parameters of different machines for different materials, Different settings and speeds, General idea of defects and remedies in blow room, Maintenance schedule and important supervisory check points at blow room.

Unit IV Carding – Object of carding, principles of working, construction and working of different parts of the card, type of card clothing, Developments of card wires. Development of modern cards-concept of chute feed, factors influencing the design of carding machines, elements and effect of their speed on carding performance. General idea of speed, setting and their impact on both natural and man – made fibre processing. Assessment of card performance – cleaning efficiency, waste %, production, draft etc. and quality aspects of carded material. Environmental condition, Concept of coiling, General idea of defects and remedies in card.

Unit V Characteristics of manmade fibres, blending and objectives, types of blending, processing of manmade fibres in blow room and carding and calculation related to material selection, Idea of fibre distribution yarns, factors affecting the blend irregularity, Processing of dyed fibres, difficulties in blow room and carding.

References:

1. Text Inst; Manual of cotton Spinning Vol. I, II.
2. Khare AR; Element of Raw Cotton and Blow room.
3. Khare AR; Elements of Carding and Drawing
4. Salhotra KR; Processing of Manmade and blends on Cotton System.
5. Gilbert Merrill; Cotton opening and picking.
6. Gilbert Merrill; Cotton carding.
7. Klein; Technology of Short Staple Spinning.
8. Klein; Practical guide to opening and carding.
9. Venkatasubramani; Spun Yarn Technology, Vol. I Blow room.
10. Venkatasubramani; Spun Yarn Technology, Vol. II Carding.
11. Pattabhiram; Essentials of Practical Cotton Spinning.
12. Szaloki ZS; High Speed Carding & Continuous Card Feeding.
13. Chattopadhyay R; Technology of Carding.
14. Pattabhiram TK; Spinning Processing Methods of Man Made Fibres.

List of Experiments (Expandable):

1. An elaborate study of blow room and machine.
2. Constructional details, setting & gauging
3. Controls & change places.
4. Calculations of speeds, drafts, production.

Course Contents

Category	Title	Code	Credits-6C			Theory Papers
DC 4	Fabric Manufacturing-I	TX 305	L	T	P	Max.Marks-100 Min.Marks-35 Duration-3hrs.
			3	1	2	

Unit I Objects of sizing, method of size preparation, details of slasher sizing and multicylinder sizing machines size ingredients detailed study of various drying systems, measuring and marking motion, drive, modification of size box, size level control, size viscosity and take-up, moisture, stretch and tension control.

Unit II Single end sizing – features and application, Sizing of manmade, blends, continuous filaments and textured yarn. Production efficiency and other related calculations.

Unit III Principles of weaving. Primary, Secondary and Auxiliary motions. Shedding – its various types and devices, positive and negative shedding, shedding tappets of different types, heald reversing motions, early and late shedding, shed troughing and heald staggering.

Unit IV Pickin classification, mechanism of Over and Under pick motions, picking tappets, shuttle speed, shuttle checking devices, causes of shuttle flying and shuttle trap. Beat-up sley movement, sley eccentricity and its effect, factors affecting sley movement, double beat-up, Timing diagram of primary motions.

Unit V Classification of take-up motion, 5 and 7 wheel take-up motion, Negative let-off motion and its related calculations, Causes of pick spacing variation. Temples-types and uses.

References:

1. Talukdar MK & Ajgaonkar D.B; Sizing- Materials, Machines & Methods.
2. Aswani; Plain Weaving Motions.
3. --; Loom Shed-BTRA Silver Jubilee Monograph Series
4. Bannerjee NN; Weaving Mechanism Vol. –1.
5. Talukdar MK; WeavingMarks & Robinson; Principles of Weaving.
6. Fox; Weaving Mechanism.
7. Paul V. Seydel; Textile Warp Sizing
8. --; Cotton Warp Sizing Hand book – E.F. Houghton & Co.
9. --; Sizing – The Key Stone for Quality Fabric; TAI Pub.
10. --; Woven Fabric Production Vol. I; NCUTE Study Material.

List of Experiments (Expandable):

Detail study of sizing machines.

Detailed study of primary and secondary motions of a plain loom

Course Contents

Category	Title	Code	Credits-4C			Practical
			L	T	P	
IT-2	JAVA	CS/CE 306	0	0	4	Max. Marks-50 Min. Marks-25 Duration-

UNIT-I Basic Java Features - C++ Vs JAVA, JAVA virtual machine, Constant & Variables, Data Types, Class, Methods, Objects, Strings and Arrays, Type Casting, Operators, Precedence relations, Control Statements, Exception Handling, File and Streams, Visibility, Constructors, Operator and Methods Overloading, Static Members, Inheritance: Polymorphism, Abstract methods and Classes

UNIT-II Java Collective Frame Work - Data Structures: Introduction, Type-Wrapper Classes for Primitive Types, Dynamic Memory Allocation, Linked List, Stack, Queues, Trees, Generics: Introduction, Overloading Generic Methods, Generic Classes, Collections: Interface Collection and Class Collections, Lists, Array List and Iterator, Linked List, Vector. Collections Algorithms: Algorithm sorts, Algorithm shuffle, Algorithms reverse, fill, copy, max and min Algorithm binary Search, Algorithms add All, Stack Class of Package java. Util, Class Priority Queue and Interface Queue, Maps, Properties Class, Un-modifiable Collections.

UNIT-III Advance Java Features - Multithreading: Thread States, Priorities and Thread Scheduling, Life Cycle of a Thread, Thread Synchronization, Creating and Executing Threads, Multithreading with GUI, Monitors and Monitor Locks. Networking: Manipulating URLs, Reading a file on a Web Server, Socket programming, Security and the Network, RMI, Networking, Accessing Databases with JDBC: Relational Database, SQL, MySQL, Oracle

UNIT-IV Advance Java Technologies - Servlets: Overview and Architecture, Setting Up the Apache Tomcat Server, Handling HTTP get Requests, Deploying a web Application, Multitier Applications, Using JDBC from a Servlet, Java Server Pages (JSP): Overview, First JSP Example, Implicit Objects, Scripting, Standard Actions, Directives, Multimedia: Applets and Application: Loading, Displaying and Scaling Images, Animating a Series of Images, Loading and playing Audio clips

UNIT-V Advance Web/Internet Programming (Overview): J2ME, J2EE, EJB, XML.

References:

1. Deitel & Deitel, "JAVA, How to Program"; PHI, Pearson.
2. E. Balaguruswamy, "Programming In Java"; TMH Publications
3. The Complete Reference: Herbert Schildt, TMH
4. Peter Norton, "Peter Norton Guide To Java Programming", Techmedia.
5. Merlin Hughes, et al; [Java Network Programming](#) , Manning Publications/Prentice Hall

List of Program to be perform (Expandable)

1. Installation of J2SDK
2. Write a program to show Concept of CLASS in JAVA
3. Write a program to show Type Casting in JAVA
4. Write a program to show How Exception Handling is in JAVA
5. Write a Program to show Inheritance and Polymorphism
6. Write a program to show Interfacing between two classes
7. Write a program to Add a Class to a Package
8. Write a program to demonstrate AWT.
9. Write a program to Hide a Class
10. Write a Program to show Data Base Connectivity Using JAVA
11. Write a Program to show "HELLO JAVA " in Explorer using Applet
12. Write a Program to show Connectivity using JDBC
13. Write a program to demonstrate multithreading using Java.
14. Write a program to demonstrate applet life cycle.

COURSE CONTENTS

Category	Title	Code	Credits-4C			Theory Papers
			L	T	P	
Humanities and Science HS 2	Energy Environment Ethics and Society	AU/CE/CM/FT/IP/ME /TX 402	3	1	0	Max Mark-100
						Min Mark-35 Duration-3Hrs

Unit 1 Energy: linkage with development, world energy scenario, fossil fuel resource- estimates and duration, India's energy scenario; Finite/ depleting energy resources, coal, oil, gas, nuclear fission, promises and present status of nuclear fusion energy; Renewable energy, solar, hydro, wind, biomass, ocean, tidal, wave and geothermal. Synergy between energy and environment, global environment issues, greenhouse gas emission, global warming, green energy solutions.

Unit 2 Society and environment: exponential growth in population, environmentally optimum sustainable population, free access resources and the tragedy of commons; environment problems and impact of P.A.T (Population, Affluence and Technology), environmentally beneficial and harmful technologies; environment impact assessment policies and auditing interaction between environment, life support systems and socio-culture system.

Unit 3 Ecosystem: definition, concepts, structure, realm of ecology, lithosphere, hydrosphere, biosphere, atmosphere-troposphere-stratosphere; energy balance to earth, matter and nutrient recycling in ecosystems; nitrogen, oxygen, carbon and water cycles, food producers, consumers and decomposers, food chains; biodiversity, threat and conservation of biodiversity. Worldviews and environmentally sustainable economic growth, introduction to Design For Environment (DFE), product lifecycle assessment for environment and ISO 14000; triple bottom-line of economic, environment and social performance; environmental ethics, its world impact and challenges.

Unit 4 (a) Air pollution-primary, secondary; chemical and photochemical reactions, effects of CO, NO, CH and particulates, acid rain, Ozone depletion; monitoring and control of pollutants
(b) Noise pollution-sources and control measures.
(c) Water pollution, analysis and management, heavy metals- and nuclear pollutions; industrial pollution from paper, pharmacy, distillery, tannery, fertilizer, food processing and small scale industries.

Unit 5 Ethics and moral values, ethical situations, objectives of ethics and its study, role morality and conflicts; values, policies and Organization Culture; Non-professional, quasi- and hard-professionals; preventive, personal, common and professional ethics; different ethical value criteria like utilitarian, virtue, right and duty ethics with discussion on the case of priority for improvement of urban (high traffic) or rural (low traffic) intersections causing equal number of fatalities; codes of ethics and their limitations; Institute of engineers code for corporate member, IEEE and ACM professional-code.

References:

1. Miller G. T Jr; Living in the environment; Cengage Publisher.
2. Cunningham W; Principles of Environmental Science: TMH
3. Harris CE, Prichard MS, Rabins MJ, Engineering Ethics; Cengage Pub.
4. Martin; Ethics in Engineering; TMH
5. Govindrajan, Natrajan, Santikumar; Engineering Ethics; PHI pub.
6. Rana SVS; Essentials of ecology and environment; PHI Pub.
7. Gerard Kiely, Environmental Engineering; TMH
8. Khan BH; Non Conventional energy resources; TMH Pub.
9. Raynold G.W. "Ethics in Information Technology; Cengage

Course Contents

Category	Title	Code	Credits-6C			Theory Papers
DC 5	Fibre Science-II	TX 403	L	T	P	Max.Marks-100 Min.Marks-35 Duration-3hrs.
			3	1	2	

Unit 1 New Fibres Glass, Carbon, Aramid, Spandex, Spectra, Nano fibres and Teflon etc. Basic concept of bi-component, hollow and tri-lobal fibres, High speed extrusion, Tow conversion process.

Unit 2 Texturing - Importance, basic principle, heat setting, false twisting, process variables, development of false twist texturing machine. Textured yarns like stuffer box, crimping, edge crimping, knit-de-knit, gear crimping etc. properties of such yarn. Principle of air bulking and properties of air-jet textured yarn. Chemical texturing, production of POY, MOY, FDY and DTY yarn

Unit 3 Optical properties - refraction, absorption, dichroism, reflection and luster. Birefringence and orientation, specific index of birefringence and its measurement.

Unit 4 Electrical properties – dielectric properties, electrical resistance of fibres and its measurement, static electricity, measurement and explanation of static phenomena. Frictional properties - nature of friction and application to fibres, static and dynamic friction of yarn on ceramics, metals

Unit 5 Thermal properties thermal parameters, structural changes in fibres on heating, concept of heat setting and its usefulness, factors affecting the heat setting behavior of textile materials, first and second order transition.

References:

1. Vaidya; Production of Synthetic Fibres.
2. Shennai VA; Technology of Textile Processing – Vol.I, Textile Fibres.
3. Gupta, Kothari; Progress in TST Vol.II Textile Fibres Developments & Innovations
4. Murthy HVS; Introduction to Textile Fibre
5. Moncrieff Man Made Fibres.
6. Akira Nakamura; Fibre Science & Technology (Translated from Japanese).
7. Mishra SP; A Text Book of Fiber Science & Technology.
8. Tatsuya Hongu, Glyn O. Philips; New Fibers 2nd Edition.

List of Experiments (Expandable):

1. Identification of fibres by microscopic and other different physical and chemical methods.
2. Chemical identification of textile fibres.
3. Quantitative Analysis of Different blends.

Course Contents

Category	Title	Code	Credits-6C			Theory Papers
DC 6	Yarn Manufacturing-II	TX 404	L	T	P	Max.Marks-100 Min.Marks-35 Duration-3hrs.
			3	1	2	

Unit 1 Draw frame Object of drawing, constructional details of draw frame, concept of perfect drawing, different drafting systems, monitoring and auto leveling of irregularities.

Unit 2 Draw frame blending, recent developments, performance assessment, idea of setting, speed and other technical parameters. Calculations related to draft, production etc. Defects and remedies, supervisory check points.

Unit 3 Combing Lap preparation, Lap former, setting, speed and recent developments, production calculations, Methods of Lap preparations and its importance.

Unit 4 Object of combing, construction and principle of working, function of different motions, combing cycles, different types of combers, different setting points and speeds. Calculation related to production, noil %, draft etc. Recent developments, assessment of comber performance, control of waste, Defects and remedies, supervisory check points.

Unit 5 Speed frame Object of speed frame, construction and principle of working, details of speed frames. Drafting, twisting winding and building mechanism, Speed and setting points, latest developments, Different types of flyers and suspended type of speed frame Calculation related to speed, draft, production, performance assessment, defects and remedies, supervisory check points.

References:

1. --;Manual of Cotton Spinning Vol. 3--Text. Institute.
2. Klein; The Textile Institute – Short Staple Spinning Series.
3. Taggart; Cotton Spinning Calculations.
4. Venkatasubramani; Spun Yarn Tech. Vol. 3.
5. Khare AR; Elements of Carding & Drawing.
6. Khare AR; Elements of Combing.
7. Cotton Combing – Gilbert Merrill
8. Cotton Drawing and Roving – Gilbert Merrill
9. Drawing, Combing and Roving – Z.S. Szaloki
10. Electronics Controls for Textile Machines – Hiren Joshi, Gouri Joshi, NCUTE Pub.2002
11. Cotton Spinning – Taggart

List of Experiments (Expandable):

An elaborate study of Drawframe, Comber and Speed frame, constructional details, setting and gauging, controls and change places, Calculations of speeds, drafts, production

1. To study the general features of a draw frame, Draw the drafting arrangement of the draw frame.
2. Draw the gearing diagram of draw frame and calculate break draft, main draft, total draft, draft constants, creel draft.
3. Study the machine, material and man safety devices in draw frame.
4. To study the general features of a speed frame. Draw the drafting arrangement of the speed frame.
5. Draw the gearing diagram of speed frame and calculate break draft, main draft, total draft, draft constants, creel draft.
6. To study the building mechanism of a speed frame.
7. To study the twisting mechanism and to calculate the twist constants and spindle speed based on the gearing diagram.
8. Study the machine, material and man safety devices in speed frame.

Course Contents

Category	Title	Code	Credits-6C			Theory Papers
DC 7	Fabric Structure and design-I	TX 405	L	T	P	Max.Marks-100 Min.Marks-35 Duration-3hrs.
			3	1	2	

Unit 1 Fabric classification, Weave notation and weave repeat, Introduction to design, drafting and peg-plan systems and their relationship, Plain weave and its derivatives e.g. warp rib, weft rib and hopsack/ matt.

Unit 2 Twill weave its different types and derivatives e.g., pointed, curved, broken, elongated, transposed, fancy and cork-screw, Satin and sateen weave regular and regular.

Unit 3 Diamond, Honeycomb ordinary honeycomb and brighton honeycomb, Mockleno, Huck-a-back, crepe weave, different types of bed ford cord, welt and pique.

Unit 4 Twill angle and yarn twist angle, Effect of yarn twist direction on the prominency of twill lines in the fabric, Reed and heald count systems and related calculations.

Unit 5 Color and weave effects stripes and checks.

References:

1. Grosicki; Watsons' Textile Design & Color.
2. Nisbet; Grammar of Textile Design.
3. Klibbe; Structural Fabric Design.
4. Murphy WS; Textile Weaving & Design.
5. Mary Humphries Fabric Glossary.

List of Experiments (Expandable):

FABRIC ANALYSIS PRACTICAL

Basic principles of woven fabric analysis and estimation of data for cloth production, Recognition of fabrics and yarns and material used in their construction, Weave analysis of basic fabrics (plain, Twill, Satin and their derivatives), Putting the design on graph paper and preparation of drafting and peg plan, Color and weave analysis of yarn dyed varieties of fabrics, Study of sett, cover-factor, count and weight calculations for basic fabrics.

Suggested Instructional strategies

Fabrics should be shown at the time of discussion on a particular design.

Experiments

Analysis of the following fabrics of different varieties

- a) Plain b) Twill c) Broken Twill d) Herringbone Twill
e) Satin f) Diamond.