

M.D. UNIVERSITY, ROHTAK
SCHEME OF STUDIES AND EXAMINATION effective from 2019-20
Bachelor of Technology (Fashion and Apparel Engineering)
Third Semester

Sr No.	Course Code	Course Title	Hours per week			Total Contact hrs/week	Credit	Examination Schedule (Marks)				Duration of Exam (Hours)
			L	T	P			Class work	Theory	Practical	Total	
1	BSC-MATH-201G	Applied Statistics and Operation Research	3	0	0	3	3	25	75		100	3
2	PCC-TT/TC/FAE-201G	Introduction to Textile Industrial Practices	3	0	0	3	3	25	75		100	3
3	PCC-TT/TC/FAE-202G	Textile Raw Materials	3	0	0	3	3	25	75		100	3
4	PCC-TC/FAE-203G	Yarn Formation	3	0	0	3	3	25	75		100	3
5	PCC-FAE-205G	Traditional Indian Textiles and Embroideries	3	0	0	3	3	25	75		100	3
6	PCC-FAE-206G	Apparel Production-I	3	0	0	3	3	25	75		100	3
7	LC-TT/TC/FAE-201G	Textile Industrial Survey	0	0	2	2	1	25		25	50	3
8	LC-TT/TC/FAE-202G	Fibre Microscopy & Identification	0	0	2	2	1	25		25	50	3
9	LC-TC/FAE-203G	Yarn Formation Lab	0	0	2	2	1	25		25	50	3
10	LC-FAE-204G	Traditional Indian Textiles and Embroideries Lab	0	0	2	2	1	25		25	50	3
11	*MC-105G	Indian Constitution	0	0	2	2	0	50				
TOTAL CREDITS							22				800	
*MC 105G is a mandatory non credit course in which the student will be required passing marks in class work.												

BSC–MATH–201G Applied Statistics & Operation Research

Course code	BSC–MATH–201G				
Category	Basic Science Course				
Course title	Applied Statistics & Operation Research				
Scheme and Credits	L	T	P	Credits	Semester–III
	3	0	0	3	
Branch	Textile Technology, Textile Chemistry, Fashion & Apparel Engineering				
Class work	25 Marks				
Exam	75 Marks				
Total	100 Marks				
Duration of Exam	03 Hours				

Pre–requisites: Basic Mathematics and Statistics

Course Objectives:

- To develop statistical and probability based skills amongst the students
- To make the students learn basic tools of Operations Research used in solving managerial problems

Note: Examiner will set nine questions in total. Question one will be compulsory. Question one will have 06 parts of 2.5 marks from all units and remaining eight questions of 15 marks each to be set by taking two questions from each unit. The students have to attempt five questions in total, first being compulsory and selecting one from each Unit.

UNIT I

Basic Statistics:

Measures of Central tendency, Dispersion, moments, skewness and Kurtosis (definition, properties and associated numerical only); Correlation, Karl Pearson's coefficient of correlation, rank correlation, line's of regression and curve fitting (linear and parabolic)

UNIT II

Probability and Probability Distributions:

Concept of probability, additive and multiplicative laws of probability (Statements and associated numerical only);

Random variate: Mathematical expectation, theorems on expectation, discrete and continuous probability distributions (definition and problems only); Univariate Binomial,

Poisson and Normal distributions (properties and applications)

UNIT III

Sampling & Testing of hypothesis

Population and sample, types of sampling, sampling distribution of means and proportions (definition only)

Definition of statistical hypothesis, null hypothesis, type I and type II errors and level of significance. Tests of significance for large and small samples (discussion) problem based on χ^2 test for goodness of fit, t-test, F-test and Analysis of variance (one way and two way classifications)

UNIT IV

Operations Research

Linear programming problem (formulation and solution by graphical approach only);
Transportation problem including time minimizing problems, Basic Assignment problem, sequencing problems (n jobs, 2 machines and n jobs, m machine problems);

Project scheduling by PERT/CPM: Definition of network, critical path, floats, finding of critical path and floats.

Reading List

Title

Mathematical Statistics

Business Statistics

Theory and problems of probability and Statistics

Operation Research

Operations Research for Management

Higher Engineering Mathematics

Author

Ray and Sharma

Gupta & Gupta

Murray P Spiegel

P.K. Gupta, Manmohan

Gupta & Sharma

B.S. Grewal

Course Outcomes:

After completion of the course, students will have the knowledge of:

- basic statistical parameters of measures of central tendency, dispersion, correlation, regression etc
- the concept of probability and probability distributions
- the concept of testing of hypothesis based upon sampling
- the concept of linear programming, transportation, assignment, sequencing problems as well as PERT/CPM

PCC–TT/TC/FAE–201G Introduction to Textile Industrial Practices

Course code	PCC–TT/TC/FAE–201G				
Category	Professional Core Course				
Course title	Introduction to Textile Industrial Practices				
Scheme and Credits	L	T	P	Credits	Semester–III
	3	0	0	3	
Branch	Textile Technology, Textile Chemistry, Fashion & Apparel Engineering				
Class work	25 Marks				
Exam	75 Marks				
Total	100 Marks				
Duration of Exam	03 Hours				

Pre–requisites: Basic Science subjects of Physics, Chemistry and

Mathematics **Course Objectives:**

- To familiarize the students with different sectors of textile industry
- To make students learn about processes involved in yarn and fabric formation
- Understanding sequence of fabric chemical processing and garment designing processes
- Calculations pertaining to yarn numbering systems

Note: Examiner will set nine questions in total. Question one will be compulsory. Question one will have 06 parts of 2.5 marks from all units and remaining eight questions of 15 marks each to be set by taking two questions from each unit. The students have to attempt five questions in total, first being compulsory and selecting one from each Unit.

UNIT-I

Introduction to different sectors of textile industry (organized as well as unorganized) including sectors based on technology such as Handloom, Powerloom, Garment, Cotton, Silk, Wool, Jute and Synthetics etc., Global Scenerio of these sectors: Number of units, size etc
Idea of Research and technology support to Textile Industry by Government Agencies; Strengths and weaknesses of Indian Textile Industry

UNIT-II

Brief outline of Ginning, Sequence of operations for conversion of natural and manmade fibers into yarn viz Opening and Cleaning, drawing, combing, roving and different spinning processes. Introduction to doubling and winding;
Introduction to passage of material through weaving preparatory and fabric formation processes viz, weaving, knitting and nonwoven by flow charts and their objectives.
Calculations pertaining to yarn numbering systems

UNIT-III

Introduction to various textile chemical processes, General sequence used for chemical processing of textile materials viz fibre, yarn, fabric and garments. Brief outlines of various preparatory processes such as singeing, desizing, scouring, bleaching, mercerizing, etc., Overview of colouration processes viz dyeing and printing of textile materials, Introduction to different mechanical and chemical finishing processes. Basic idea of garment and knit processing processes.

UNIT-IV

Sequence of operations for converting fabric to garment, Importance of Design; Introduction to fashion and retailing of readymade garments, Branding, Awareness of trends and accessories, Different sectors of garment manufacturing units, export houses, buying houses. Brief idea of garment imports/exports of different countries

Title

Cotton Spinning
Cotton Yarn Weaving
Principles of Weaving
Textiles Fibre to Fabric
Fundamental Principles of Textile
Processing
Technology of Clothing Manufacture

Author

K Ganesh & A R Garde
RN Kanungi & AR Garde
Marks & Robinson
Corbmann
V A Shenai
Carr & Latham

Course Outcomes:

At the end of the course, the students will:

- be familiar with all the processes of textile industry
- have the knowledge of global scenerio of different sectors of textile

PCC–TT/TC/FAE–202G Textile Raw Materials

Course code	PCC–TT/TC/FAE–202G				
Category	Professional Core Course				
Course title	Textile Raw Materials				
Scheme and Credits	L	T	P	Credits	Semester–III
	3	0	0	3	
Branch	Textile Technology, Textile Chemistry, Fashion & Apparel Engineering				
Class work	25 Marks				
Exam	75 Marks				
Total	100 Marks				
Duration of Exam	03 Hours				

Pre–requisites: Basic Science subjects of Physics, Chemistry and Mathematics
Course Objectives:

- To provide basic knowledge of terms used in textiles
- To familiarize the students with details of raw materials used in textile industry
- To make students learn about natural and man made fibre details

Note: Examiner will set nine questions in total. Question one will be compulsory. Question one will have 06 parts of 2.5 marks from all units and remaining eight questions of 15 marks each to be set by taking two questions from each unit. The students have to attempt five questions in total, first being compulsory and selecting one from each Unit.

UNIT-I

General definitions and important terminologies related to textiles; Classification of fibres; Essential and desirable properties of textile fibres and their role in final products; Advantages and disadvantages of natural and manmade fibres;
Cotton: Geographical distribution, structure and properties (physical and chemical); Different varieties including organic as well as Bt cotton and their properties; Applications.

UNIT-II

Bast and leaf fibres such as jute, hemp, sisal and ramie etc: Geographical distribution, extraction, properties and their uses.
Varieties of natural silk, rearing of silk worm, properties and uses of various types of silk; silk reeling, throwing and weighing.

UNIT-III

Varieties, sorting and grading of wool, chemical and physical properties of wool, processes involved in the removal of impurities from raw wool, numbering systems of woollen and worsted yarns. General principles of manufacturing of man made fibres.

UNIT-IV

Brief outline of the manufacturing processes of important man-made fibres, viz. rayons (Viscose and Acetate), polynosic, tencel, nylons, polyester, acrylics, polypropylene, polyolefins, polyacrylonitrile and some technical speciality fibres like spandex/lycra etc (only flow charts); their Important physical and chemical properties and applications.

Reading List

Title

Handbook of Textile Fibres

Textile Fibres

Author

J Gordon Cook

HVS Murthy

Manufactured Fibre Technology

V B Gupta & V K Kothari

Course Outcomes:

At the end of the course, the students will be:

- familiar with different types of natural and man made fibres
- having the knowledge of physical and chemical properties of natural and man made fibres
- able to explore the applications of different types of natural and man made fibres

PCC-TC/FAE-203G Yarn Formation

Course code	PCC-TC/FAE-203G				
Category	Professional Core Course				
Course title	Yarn Formation				
Scheme and Credits	L	T	P	Credits	Semester-III
	3	0	0	3	
Branch	Textile Chemistry, Fashion and Apparel Engineering				
Class work	25 Marks				
Exam	75 Marks				
Total	100 Marks				
Duration of Exam	03 Hours				

Pre-requisites: Basic Science subjects of Physics, Chemistry and Mathematics

Course Objectives:

- To familiarize the students with objectives of initial stages of yarn formation viz. Ginning, Mixing and Blending, Blowroom and Card, Drawing-in, Combing and Roving
- To make the students understand basic mechanisms involved in different stages of yarn formation viz..Ring frame, Open-end spinning, DREF spinning, Air-Jet spinning
- To make the students learn about plying, twisting, sewing thread, Yarn quality, Yarn Numbering Systems, etc.
- To make students learn calculations related to various stages of yarn formation viz. Blowroom and Card, Draw frame, Roving, ring frame and yarn numbering

Note: Examiner will set nine questions in total. Question one will be compulsory. Question one will have 06 parts of 2.5 marks from all units and remaining eight questions of 15 marks each to be set by taking two questions from each unit. The students have to attempt five questions in total, first being compulsory and selecting one from each Unit.

UNIT I

Brief introduction of the subject; Objectives of ginning; Mixing and Blending: Objectives. Introduction to various preparatory processes involved in the production of yarn viz. opening and cleaning (blow room and card), drawing (draw frame), combing (comber) and rove formation (speed frame) with the objectives of each process.

UNIT II

Introduction to different processes involved in the production of yarn viz. conventional (ring spinning) and unconventional (rotor, air-jet and friction spinning etc) with the objectives of each. Properties and end uses of different types of yarns such as ring spun, rotor spun, friction spun and air-jet spun etc.

UNIT III

Objectives of plying and twisting of spun and filament yarns; Objectives and process description of reeling; Brief description of fancy yarns: ply cable yarn; core spun yarn, sewing threads, slub yarn, grindle, mélange yarns etc.

UNIT IV

Essential properties of a sewing thread. Concept of yarn quality and its importance, Yarn numbering systems and calculations pertaining to conversions,

Title

Cotton Ginning, Textile Progress Vol.24 No.2 I
Spun Yarn Technology, Vol I & II
Short Staple Spinning Volume-I, II, III & IV
Spinning of Manmade & Blends on Cotton Systems
Technology of Carding
Manufactured Fibre Technology
Spun Yarn Technology

Author

Doraiswamy, P Chellamani
A Venkatasubramani
W Klein
KR Salhotra
R Chattopadhyay
V B Gupta & V K Kothari
Eric Oxtoby

Course Outcomes

At the end of the course, the students will:

- have the knowledge of Ginning, Mixing and Blending, the initial processes of yarn formation;
- have learnt the principle and working of different machines of Yarn formation
- be familiar with the Ply yarn, Yarn Twist, sewing thread, Yarn Quality, Yarn Numbering System;
- be able to calculate various parameters like draft, production and efficiency related to different machines of yarn formation as well as conversion factors of different yarn numbering systems.

PCC–FAE–205G Traditional Indian Textiles and Embroideries

Course code	PCC–FAE–205G				
Category	Professional Core Course				
Course title	Traditional Indian Textiles and Embroideries				
Scheme and Credits	L	T	P	Credits	Semester–III
	3	0	0	3	
Branch	Fashion and Apparel Engineering				
Class work	25 Marks				
Exam	75 Marks				
Total	100 Marks				
Duration of Exam	03 Hours				

Pre–requisites: Basic Science subjects of Physics and Mathematics

Course Objectives:

The course is designed to make the students understand the:

- concepts of Traditional Indian textiles and motifs/designs involved in producing such fabrics
- types of embroidery stitches, techniques and machines used in textile surface ornamentations
- various Indian traditional textiles and embroideries of different states with special reference to raw materials, embroidery threads, colours, stitch types, motifs and production processes
- traditional textiles and embroideries of the western and asian countries

Note: Examiner will set nine questions in total. Question one will be compulsory. Question one will have 06 parts of 2.5 marks from all units and remaining eight questions of 15 marks each to be set by taking two questions from each unit. The students have to attempt five questions in total, first being compulsory and selecting one from each Unit.

UNIT I

Introduction to the subject; Study of Indian traditional textiles such as woven textiles: Baluchar, Jamdani, Brocades, Ikat, Patola; Resist dyed textiles as Bandhani; Painted textiles as Kalamkari, Madhubani and Warli textiles; Printed textiles as block printed, bagroo and dabu.

UNIT II

Introduction to embroidery techniques; Types of embroidery techniques; Study of various

types of basic embroidery stitches as stem stitch, chain stitch, herringbone stitch, cross stitch etc.; Textile surface ornamentation by beads, appliqué and ribbons; Functional changes and value addition due to embroidery.

UNIT III

Study of Indian traditional textiles and embroideries of different states with special reference to raw materials, embroidery threads, colours, stitch types, motifs and production processes used such as Chikankari, Phulkari, Chamba Rumal, Kasuti, Kanthas, Kasida, Sindhi, Kutch and Kathiawar

UNIT IV

Study of traditional textiles and embroideries of the western and asian countries as European textiles, Ikat textiles of Indonesia and Malaysia, Chinese textiles, American textiles and Japanese textiles.
Advancements in embroidery techniques, embroidery machines with advanced features.

Reading List

Title	Author
Ethnic Embroidery of India", Honesty Publications	Usha Shrikant Vandana
Embroidery Basics", Barson's Educational Series Incorp, Traditional India Textile, Thames & Hudson, 1998	Barnden Betty Gillow
Complete Guide to Needle work	Readers Digest
The Dictionary of Needle work Embroidery	Sophia Cateild and Blanche Arora's

Course Outcomes:

After completion of the course, students will be able to:

- understand the fundamentals of Indian traditional textiles
- understand the embroidery techniques, stitches, machine and production processes of traditional Indian textiles and embroideries
- comprehend the various Indian traditional textiles of different states
- understands the traditional textiles and embroideries of Asian and Western countries

PCC–FAE–206G Apparel Production–I

Course code	PCC–FAE–206G				
Category	Professional Core Course				
Course title	Apparel Production -I				
Scheme and Credits	L	T	P	Credits	Semester–III
	3	0	0	3	
Branch	Fashion and Apparel Engineering				
Class work	25 Marks				
Exam	75 Marks				
Total	100 Marks				
Duration of Exam	03 Hours				

Pre–requisites: Basic Science subjects of Physics, Chemistry and Mathematics **Course Objectives:**

The course is designed for the students to learn:

- basic concepts of apparel production countries and present scenario;
- types of cutting, spreading devices and their functions;
- types of fabrics, marker planning and making;
- types of pattern and pattern lay out, etc.

Note: Examiner will set nine questions in total. Question one will be compulsory. Question one will have 06 parts of 2.5 marks from all units and remaining eight questions of 15 marks each to be set by taking two questions from each unit. The students have to attempt five questions in total, first being compulsory and selecting one from each Unit.

UNIT I

Introduction to apparel industry, its components and unique features, Objectives of clothing, Fashion pipeline and significance, History of globalisation of textile and apparel industry industries including global textile trade battle, reasons of import, MFA, Getting around the quota, Off-shoring process. Introduction to fabric types -Border design, Diagonal design / Diagonal print, Diagonal weave, Irregular design, Knit, Large print, Light reflecting, coated, pile etc, Anthropometry: Introduction, Steps and techniques involved in surveying, Sizing system

UNIT II

Initial preparation of textile materials, Basics and requirements of marker planning, calculation; Influence of textile properties on marker-making, Techniques for marker-planning manual and computer aided marker-planning, Reproduction of the marker, Types of pattern

-Drafted pattern,

Draped pattern, Graded pattern, Commercial pattern, Production pattern etc, Tracing and marking Terminology - Chalked marking, chalked thread, color coding etc.

UNIT III

Spreading: principle and requirement of spreading process, manual spreading of textile: characteristics, process modes, disadvantages. Automatic spreading: spreading machine and parts, control, semi and fully automated, tubular knit spreader, automated fabric fault registration, spreading modes; Different Spreading tables and features, etc. Latest trends and automation in spreading process;

UNIT IV

Requirements of cutting, Manual cutting process : notches and cloth marking drills, Aids and devices for cutting- Band knife, clamp, click press, electrical cloth notcher, Straight knife cutter, Circular knife, portable rotary knife cutter, Band Knife, Automated cutting: Computer integrated, laser-cutting, plasma cutting, ultrasonic cutting system, fusing cut textile components, final work operation. Computer integrated spreading, marking and cutting devices. Manual marker-making, spreading and cutting of striped and check, piles, motifs, border fabrics

Reading List

Title	Author
Clothing Technology	Carr and Latham
Apparel Industry Magazine	World Clothing Manufacturer

Course Outcomes:

After completion of the course, students will have the knowledge of:

- different types of cutting devices and their working principles
- spreading mechanism and working of different spreading devices
- marker planning, marker making, patterns and pattern lay outs

LC-TT/TC/FAE-201G Textile Industrial Survey

Course code	LC-TT/TC/FAE-201G				
Category	Professional Core Course				
Course title	Textile Industrial Survey				
Scheme and Credits	L	T	P	Credits	Semester-III
	0	0	2	1	
Branch	Textile Technology, Textile Chemistry, Fashion & Apparel Engineering				
Class work	25 Marks				
Exam	25 Marks				
Total	50 Marks				
Duration of Exam	03 Hours				

Pre-requisites: Basic Science subjects of Physics, Chemistry and

Mathematics **Course Objectives:**

- The course is designed to make students learn writing reports of survey/practical visits to textile industrial units

Contents:

Study and survey of textile industries spread over India as well as Global areas specifically in nearby places, through practical visits and internet facilities; Preparation of report of the survey and highlight salient features of specific sectors involved like spinning, weaving, knitting, process house, garment manufacturing, Label manufacturing, export and buying houses etc

Course Outcomes:

- At the end of this course the students will be able to survey and prepare the reports of any Industrial unit specifically in textile fields

LC-TT/TC/FAE-202G Fibre Microscopy & Identification

Course code	LC-TT/TC/FAE-202G				
Category	Professional Core Course				
Course title	Fibre Microscopy & Identification				
Scheme and Credits	L	T	P	Credits	Semester-III
	0	0	2	1	
Branch	Textile Technology, Textile Chemistry, Fashion & Apparel Engineering				
Class work	25 Marks				
Exam	25 Marks				
Total	50 Marks				
Duration of Exam	03 Hours				

Pre-requisites: Basic Science subjects of Physics, Chemistry and Mathematics, Textile Raw Materials
Course Objectives:

The Lab course is designed to make students learn

- identification of textile fibres and filaments
- identify the burning behaviour, microscopical structure and chemical solubility of different textile fibres
- blend analysis

Contents

Principle of microscopy, Microscopic identification of fibres, preparation and mounting of specimen for longitudinal view, Cross-section cutting. Microtomy - cork method, metal plate method, Hardy's Microtome, Mountants and reagents for fibre microscopy; Identification of fibres through burning as well as solubility tests. Standard schemes of analysis of homogenous fibre blends by physical and chemical methods; Qualitative and quantitative determination of components; Preparation of reagents used for chemical analysis.

Reading List

Title

Hand book of textile fibres
 Textile Fibres

Author

J Gordan Cook
 HVS Murthy

Course Outcomes:

After completion of the course, students will have the knowledge of:

- the burning tests, microscopic tests and solubility tests for identification of the textile fibers
- chemistry involved in various practical tests

- various tests for analysis of blends of two or more fibres

LC-TC/FAE-203G Yarn Formation Lab

Course code	LC-TC/FAE-203G				
Category	Professional Core Course				
Course title	Yarn Formation				
Scheme and Credits	L	T	P	Credits	Semester-III
	0	0	2	1	
Branch	Fashion and Apparel Engineering				
Class work	25 Marks				
Exam	25 Marks				
Total	50 Marks				
Duration of Exam	03 Hours				

Pre-requisites: Basic Science subjects of Physics, Chemistry and Mathematics, Yarn formation

Course Objectives:

- This Lab course is designed to impart first-hand experience of handling different yarn formation machineries as a bridge between theory and practice.

Contents

Discussion and demonstration of the various machines and of manufacturing processes involved in converting fibres to yarn viz. mixing, blending, opening, cleaning, carding, drawing, combing, rove formation, spinning, doubling etc.; Introduction to unconventional spinning machines/processes; Rotor spinning, Air-jet spinning and Friction spinning etc.; Simple Calculations pertaining to these machines/processes

List of Experiments:

1. To study the objectives of Blow room, mixing and blending. Draw the flow of material through blowroom line and discuss the functions of each machine and its parts
2. To study the objectives of CARDING machine. Draw the flow of material through a card and label various parts. Also discuss the functions of each parts
3. To study the objectives of COMBING machine. Draw the flow of material through a combing and label various parts. Also discuss the functions of each parts
4. To study the objectives of DRAW FRAME. Draw the flow of material through a draw frame and label various parts. Also discuss the functions of each parts
5. To study the objectives of SPEED FRAME. Draw the flow of material through a SPEED frame and label various parts. Also discuss the functions of each parts

6. To study the objectives of RING FRAME. Draw the flow of material through a RING frame and label parts. Also discuss the functions of each part
7. To study the objectives of MODERN SPINNING MACHINES. Draw the flow of material through the various machines and label different parts. Also discuss the functions of each machines and its parts
8. To study the objectives of WINDING machine. Draw the flow of material through Winding machine and discuss the functions of each machine and its parts.
9. Draw the flow of material through Ring-doubler and discuss the functions of each machine and its parts.
10. To study the objectives of TFO. Draw the flow of material through TFO machine and discuss the functions of each parts

Course Outcomes:

At the end of this course the students will be able to:

- understand the blowroom line, mixing, blending and sequence of machines in the blowroom line;
- understand carding, draw frame, combing, speed frame, ring frame for processing different materials;
- understand winding, ring doubler, TFO, different types of Tensioners and Yarn clearers, packages, drums for processing different materials.

LC-FAE-204G Traditional Indian Textiles and Embroideries Lab

Course code	LC-FAE-204G				
Category	Professional Core Course				
Course title	Traditional Indian Textiles and Embroideries Lab				
Scheme and Credits	L	T	P	Credits	Semester-III
	0	0	2	1	
Branch	Fashion and Apparel Engineering				
Class work	25 Marks				
Exam	25 Marks				
Total	50 Marks				
Duration of Exam	03 Hours				

Pre-requisites: Basics of Physics, Chemistry, Math, Textile Raw material, Yarn formation and Traditional Indian Textiles and Embroideries (Theory)

Course Objectives:

- This Lab course is designed to impart first-hand experience of making Traditional Indian Textiles and embroideries. It also helps students practically understand the various stitches and embroidery techniques, traditional block prints, etc.

Contents:

Introduction to traditional textiles and embroidery work; Requirements of embroidery work; Tools and aids for traditional textiles and embroidery work. Sample preparation of different basic embroidery stitches such as stem stitch, chain stitch, herringbone stitch, cross stitch, open chain stitch, satin stitch, blanket stitch, button hole stitch etc. Preparation of atleast one end- article using basic embroidery stitches. Sample preparation of embroideries of different states as mentioned with respective references to material, colour, thread, stitches and motifs: Chikankari, Phulkari, Kantha, Kashida, Kasuti, Sindh, Kutch, Chamba Rumal, Patch work, Appliqué. Learning the production techniques of traditional textiles as block printing, tie-dye, painted etc; Learning the machine embroidery techniques with the sample development.

List of Experiments

1. Study of Tools and aids for Traditional Textiles and embroidery work
2. Learning the production techniques of traditional textiles as block printing, tie-dye, painted etc.
3. Practice of different basic embroidery stitches

4. Preparation of atleast one end- article using basic embroidery stitches.
 5. Sample preparation of embroideries of different states as mentioned with respective references to material, colour, thread, stitches and motifs
 6. Learning the machine embroidery techniques with the sample development.
-
- Learn traditional textiles of India practically
 - Have practical exposure about embroidery stitches and techniques
 - Learn the embroideries of different states of India

CONSTITUTION OF INDIA

Class Work : 50

Course Code	MC-105G		
Category	Mandatory Course		
Course title	Constitution of India (Theory)		
Scheme	L	T	P
	0	0	2

CONSTITUTION OF INDIA– BASIC FEATURES AND FUNDAMENTAL PRINCIPLES

The Constitution of India is the supreme law of India. Parliament of India can not make any law which violates the Fundamental Rights enumerated under the Part III of the Constitution. The Parliament of India has been empowered to amend the Constitution under Article 368, however, it cannot use this power to change the “basic structure” of the constitution, which has been ruled and explained by the Supreme Court of India in its historical judgments. The Constitution of India reflects the idea of “Constitutionalism” – a modern and progressive concept historically developed by the thinkers of “liberalism” – an ideology which has been recognized as one of the most popular political ideology and result of historical struggles against arbitrary use of sovereign power by state. The historic revolutions in France, England, America and particularly European Renaissance and Reformation movement have resulted into progressive legal reforms in the form of “constitutionalism” in many countries. The Constitution of India was made by borrowing models and principles from many countries including United Kingdom and America.

The Constitution of India is not only a legal document but it also reflects social, political and economic perspectives of the Indian Society. It reflects India’s legacy of “diversity”. It has been said that Indian constitution reflects ideals of its freedom movement, however, few critics have argued that it does not truly incorporate our own ancient legal heritage and cultural values. No law can be “static” and therefore the Constitution of India has also been amended more than one hundred times. These amendments reflect political, social and economic developments since the year 1950.

The Indian judiciary and particularly the Supreme Court of India has played an historic role as the guardian of people. It has been protecting not only basic ideals of the Constitution but also strengthened the same through progressive interpretations of the text of the Constitution. The judicial activism of the Supreme Court of India and its historic contributions has been recognized throughout the world and it gradually made it “as one

of the strongest court in the world”.

COURSE CONTENTS

1. Meaning of the constitution law and constitutionalism.
2. Historical perspective of the Constitution of India.
3. Salient features and characteristics of the Constitution of India.
4. Scheme of the fundamental rights.
5. The scheme of the Fundamental Duties and its legal status.
6. The Directive Principles of State Policy – Its importance and implementation.
7. Federal structure and distribution of legislative and financial powers between the Union and the States.
8. Parliamentary Form of Government in India – The constitution powers and status of the President of India
9. Amendment of the Constitutional Powers and Procedure
10. The historical perspectives of the constitutional amendments in India
11. Emergency Provisions : National Emergency, President Rule, Financial Emergency
12. Local Self Government – Constitutional Scheme in India
13. Scheme of the Fundamental Right to Equality
14. Scheme of the Fundamental Right to certain Freedom under Article 19
15. Scope of the Right to Life and Personal Liberty under Article 21

REFERENCES:

1. The Constitutional Law Of India 9th Edition, by Pandey. J. N.
2. The Constitution of India by P.M.Bakshi
3. Constitution Law of India by Narender Kumar
4. Bare Act by P. M. Bakshi

M.D. UNIVERSITY, ROHTAK
SCHEME OF STUDIES AND EXAMINATION effective from 2019-20
Bachelor of Technology (Fashion and Apparel Engineering)
Fourth Semester

Sr No.	Course Code	Course Title	Hours per week			Total Contact hrs/week	Credit	Examination Schedule (Marks)				Duration of Exam (Hours)
			L	T	P			Class work	Theory	Practical	Total	
1	HSMC-EIE-201G	Entrepreneurial and Industrial Engineering	3	0	0	3	3	25	75		100	3
2	ESC-TT/TC/FAE-201G	Computer Aided Textile Designing	3	0	0	3	3	25	75		100	3
3	PCC-TC/FAE-204 G	Fabric Formation	3	0	0	3	3	25	75		100	3
4	PCC-FAE-207 G	Apparel Merchandising	3	0	0	3	3	25	75		100	3
5	PCC-FAE-208 G	Colour and Design Concepts	3	0	0	3	3	25	75		100	3
6	PCC-FAE-209 G	Apparel Production-II	3	0	0	3	3	25	75		100	3
7	ESC-TT/TC/FAE -202G	Computer Aided Textile Designing Lab	0	0	2	2	1	25		25	50	3
8	LC-TC/FAE-204G	Fabric Formation Lab	0	0	2	2	1	25		25	50	3
9	LC-FAE-205G	Colour and Design Lab	0	0	2	2	1	25		25	50	3
10	LC-FAE-206G	Garment Manufacturing Lab	0	0	2	2	1	25		25	50	3
11	*MC-108G	Essence of Indian Knowledge Tradition	0	0	2	2	0	50				
TOTAL CREDITS							22				800	

NOTE: At the end of 4th semester each student has to undergo Practical Training of 4/6 weeks in an Industry/ Institute/ Professional Organization/ Research Laboratory/ training centre etc. and submit typed report along with a certificate from the organization & its evaluation shall be carried out in the 5th Semester.

*MC- 108G is a mandatory non credit course in which the student will be required passing marks in class

work.

HSMC–EIE–201G Entrepreneurial and Industrial Engineering

Course code	HSMC–EIE–201G				
Category	Humanities and Social science including Management courses				
Course title	Entrepreneurial and Industrial Engineering				
Scheme and Credits	L	T	P	Credits	Semester–IV
	3	0	0	3	
Branch	Textile Technology, Textile Chemistry, Fashion & Apparel Engineering				
Class work	25 Marks				
Exam	75 Marks				
Total	100 Marks				
Duration of Exam	03 Hours				

Pre–requisites: Basic concepts of Social

Sciences **Course Objectives:**

The course is designed to make the students understand the:

- concepts of Entrepreneurship and Entrepreneurial Skills;
- ways of preparation of project reports, their components and feasibility studies
- principles of management;
- concepts of Industrial Engineering.

Note: Examiner will set nine questions in total. Question one will be compulsory. Question one will have 06 parts of 2.5 marks from all units and remaining eight questions of 15 marks each to be set by taking two questions from each unit. The students have to attempt five questions in total, first being compulsory and selecting one from each Unit.

UNIT I

Entrepreneurship: Meaning and concept, role of entrepreneurship in economic development

& new economic reforms, Entrepreneurial Skills, decision process, Factors influencing entrepreneurship; Business Opportunity Identification; Preparing a Business Plan and project reports, Significance, components and feasibility studies of business plans/project reports, Importance of new venture financing, sources of financing

UNIT II

Industrial Parks (Meaning, features with examples); Special Economic Zone (Meaning, features with examples); Financial institutions and agencies, MSME, Small Scale Industries, Introduction to SIDBI, IDBI, IFCI and various Government agencies like NABARD etc, Carry on Business (COB) licence, Environmental Clearance, Introduction to various industrial hazards like fire, mechanical and electrical etc, Introduction to safety rules for prevention of accidents, National Small Industries Corporation Rules and

regulations for exemption from income tax, excise clearance etc., Claiming of draw back in export business.

UNIT III

Productivity – importance, concepts and measurements, Work study, Method study, micro - motion study, Production planning and control- Importance of planning - job, batch and mass production-Introduction and need for a new product, Functions of production control at macro and micro levels - Routing , Scheduling, dispatching and follow up etc. Ergonomics and its importance

UNIT IV

Introduction to Industrial Engineering - Evolution of modern Concepts in Industrial Engineering - Functions of Industrial Engineering, application of Industrial Engineering. Facility location factors and evaluation of alternate locations, Types of plant layout and their evaluation, Assembly line balancing, Materials handling systems, Inventory Control, inventory control techniques. Job evaluation, merit rating, incentive schemes, and wage administration, Quality control and Inspection.

Reading List

Title

Project Feasibility Analysis

Environment & Entrepreneur

Environment & Entrepreneur

Planning a Small Scale Industry: A Guide to Entrepreneurs

Developing Entrepreneurship-A Handbook Learning System

Motion and Time study

Engineered work Measurement

Work Study and Ergonomics

Introduction to Work Study

Work Study

Author

Cliffon, Davis S & Fyfie,
David E

A N Desai

P F Drucker

R Jain

Pareek, Udai and
Venkateswara Rao

Ralph M Barnes

Weldon, ELBS, Marvin E
Mundel

S Dalela and Sourabh

ILO

Ralph & Barnes

Course Outcomes

At the end of the Course, the students will be able to:

- Take the right decisions to optimize resources utilization by improving productivity of the Materials, Machines, Money, Methods, Manpower and Management effectively;
- find alternative best productive methods reducing time, improving human efficiency and minimising waste;
- understand the functions and applications of Industrial Engineering.

ESC-TT/TC/FAE-201G Computer Aided Textile Designing

Course code	ESC-TT/TC/FAE-201G				
Category	Professional Core Course				
Course title	Computer Aided Textile Designing				
Scheme and Credits	L	T	P	Credits	Semester-IV
	3	0	0	3	
Branch	Textile Technology, Textile Chemistry, Fashion & Apparel Engineering				
Class work	25 Marks				
Exam	75 Marks				
Total	100 Marks				
Duration of Exam	03 Hours				

Pre-requisites: Basic Science subjects of Physics, Chemistry, Mathematics and Computer **Course Objectives:**

- To introduce computer softwares and hardwares related to textile designing;
- To make students learn basic tools and designing techniques used in textile and Apparel sectors;
- To make students understand applications of CAD for colour and weave designs.

Note: Examiner will set nine questions in total. Question one will be compulsory. Question one will have 06 parts of 2.5 marks from all units and remaining eight questions of 15 marks each to be set by taking two questions from each unit. The students have to attempt five questions in total, first being compulsory and selecting one from each Unit.

UNIT I

Fundamentals of CAD: Definition, History, Hardware and Software requirements of CAD, Design Process, Application areas of computer aided design and manufacturing in textile and apparel industry, Introduction to Computer Graphics, Raster and Vector Graphics features.

UNIT II

Hardware in CAD: Introduction, Design workstation, Graphics terminal, input and output devices, central processing unit and secondary storage. Arrangement of figures - unit-repeating design, the drop device, drops reverse designs, system of distribution with reference to diamond base, ogee base, and rectangular base lines. Construction of designs from incomplete repeat, classification of borders patterns, all over patterns and

types

UNIT III

Selection tools in adobe Photoshop: selection by shape, colour and mask, Colour specification tools, Image adjustment modes, layer blending modes and their options. Different brush tools and their dynamics options, Colour fill: Paint and gradient, Clone tool, colour modification via dodge, burn, colour replacement, mixer etc. Layer masking, Texture mapping, Filter applications for fancy effects, layer functions, working with displacement maps, texture maps. Basic vector shape drawing tools, shape editing via anchor points etc.

UNIT IV

Introduction to Corel Draw Interface Tool Box, Working with shape drawing tools for lines, rectangles, squares, circles, ellipses, polygons, stars and spirals etc. Object transformations as rotation, scaling etc. freely and for specific dimensions, Selecting Objects, reshaping, duplicating, grouping, trimming, locking and unlocking, aligning objects. Introduction to curves, nodes and segments; Drawing freehand tools; Drawing and selecting closed curves and nodes, adding, removing and joining nodes. Bezier tool, drawing curve and straight line with bezier tools, Colour fill and options

Reading List

Title

Computer Aided Design & Manufacturing
Computer Graphics Principles & Practices

Computer Graphics
"Watsons Textile Design and Colour"

Author

Mickle P Groover, Emory W. Zimmers Jr
James D Foley, Andeies Van Da Shvan K
Feiner. John F Hughes
Donald Mearn & M Pauline, Baker
Grosiciki, Newnes Buttersworth, 1988

Course Outcomes:

After completion of the course students will:

- be familiar with computer fundamentals for Computer Aided Designing
- have the knowledge of computer softwares and basic tools for textile designing
- know the elements and principles of design and their applications in textile designing through CAD

PCC–TC/FAE–204G Fabric Formation

Course code	PCC–TC/FAE–204G				
Category	Professional Core Course				
Course title	Fabric Formation				
Scheme and Credits	L	T	P	Credits	Semester–IV
	3	0	0	3	
Branch	Textile Chemistry, Fashion and Apparel Engineering				
Class work	25 Marks				
Exam	75 Marks				
Total	100 Marks				
Duration of Exam	03 Hours				

Pre–requisites: Basic Science subjects of Physics, Chemistry and Mathematics

Course Objectives:

The course is designed to make students learn:

- the basic concepts of fabric forming processes
- various manufacturing systems of woven fabrics
- processes involved during manufacturing of woven fabrics , their defects and remedial measures

Note: Examiner will set nine questions in total. Question one will be compulsory. Question one will have 06 parts of 2.5 marks from all units and remaining eight questions of 15 marks each to be set by taking two questions from each unit. The students have to attempt five questions in total, first being compulsory and selecting one from each Unit.

UNIT I

Introduction to Clothing Science, Factors involved in the study of clothing; General functional description of clothing; Classification of various types of Cloths, Fabrics according to end uses, manufacturing processes, raw material, etc. Introduction to various fabric manufacturing methods, conversion of yarn into fabric with flow charts, Introduction of warp and weft preparatory processes. Winding: Objectives, types of packages, Flow of material on a winding machine, Brief idea about different devices in a winding machine. Warping: Objectives of warping, Direct and sectional warping

UNIT II

Sizing: Objectives of sizing. Various sizing ingredients; Drawing-In: Objectives and flow of

material in these operations. Pirn winding, Shuttle Looms: Definition of handloom, plain loom,

and automatic loom. , General passage of material through loom, description of important parts of a loom, basic loom mechanisms; primary, secondary and auxiliary motions.

UNIT III

Brief introduction and overview to Shuttleless looms; their advantages over shuttle looms. Terms used for all woven fabrics, Ways to Distinguish Warp & Filling Yarns, Fabric properties-dimensional/structural, mechanical properties related to performance and durability, aesthetic properties. Functional and comfort related fabric properties Fabric quality attributes, Influence of fibres, yarn characteristics and fabric construction parameter on fabric properties. .

UNIT IV

Fabric defects; classification, reasons, point rate system for cloth grading, drawbacks of point system, fabric inspection. Introduction about followings; Knitted fabrics, narrow fabrics, briefing about dobby and jacquard, some standard fabrics, introduction to non woven fabrics, Fabrics from yarns; braids, nets, laces, Composite Fabrics; coated fabrics, laminated fabrics, bonded fabrics and tufted fabrics.

Reading List

Title	Author
Principles of Weaving	Marks & Robinson
Cotton Yarn weaving	ATIRA
Textile Science	Cobmann
NCUTE's Manual	
Weaving: Conversion of Yarn to Fabric	P R Lord and M H Mohamed

Course Outcomes:

After completion of the course, students will:

- have the knowledge of essential requirements for fabric forming processes
- be familiar with different techniques of fabric production systems
- have the knowledge of raw materials used, size ingredients for producing woven fabrics;
- be familiar with the fabric defects, remedial measures, and other types of fabrics

PCC–FAE–207G Apparel Merchandising

Course code	PCC–FAE–207G				
Category	Professional Core Course				
Course title	Apparel Merchandising				
Scheme and Credits	L	T	P	Credits	Semester–IV
	3	0	0	3	
Branch	Fashion and Apparel Engineering				
Class work	25 Marks				
Exam	75 Marks				
Total	100 Marks				
Duration of Exam	03 Hours				

Pre–requisites: Basic Science subjects of Physics, Chemistry and Mathematics, Yarn Manufacture–I

Course Objectives:

- To familiarize the students about the organizational structure of apparel industry, Apparel merchandising, Fashion forecasting, etc.
- To make the students understand basic concept of retailing and wholesaling, pricing strategies, pricing components etc.
- Understand Product line planning, steps involved in product line planning, etc.
- Understand budgeting, dollar and unit planning, economic order quantity, etc.

Note: Examiner will set nine questions in total. Question one will be compulsory. Question one will have 06 parts of 2.5 marks from all units and remaining eight questions of 15 marks each to be set by taking two questions from each unit. The students have to attempt five questions in total, first being compulsory and selecting one from each Unit.

UNIT I

Overview of apparel Industry; Organizational structure of apparel Industry; Job responsibilities of various constituencies, Interactive relations between various apparel departments; Uniqueness of apparel business, Apparel merchandising: Concept and definition. Various business interactions in the apparel supply chain. Different components and activities of merchandising– line planning, line development and line presentation. Fashion forecasting and its importance; Factors influencing fashion movement, Job responsibilities of a merchandiser in an apparel industry, Essential qualifications of a merchandiser, Merits and demerits of merchandising career.

UNIT II

Concept of retailing and wholesaling; Classification of retailers and wholesalers; Decision making in retailing; Pricing considerations and pricing strategies; Factors affecting pricing

strategies; Setting up and changing of retail pricing; Pricing terminology; Pricing components and pricing strategies adopted by apparel organizations; Methods of disposition of unsold apparel merchandise.

UNIT III

Product line planning; Importance of line planning; Different steps involved in product line planning; Different approaches of merchandise planning: Traditional and contemporary line planning. Relative merits and demerits of different line planning approach; Concept of assortment planning; Product line development: concept, stages and types; Product Line presentation and its importance at different levels of supply chain; Visual merchandising-concept, significance and components.

UNIT IV

Budgeting – Concept and definition; Importance of budgeting process; Classification of budgets; Various steps and aspects involved in budgeting process; Dollar and unit planning & control systems; Inventory value planning; Integrated dollar and unit planning; Concept and calculations of reorder point and economic order quantity at apparel retail level.

Reading List

Title

Apparel Merchandising
Fashion Merchandising and
Marketing
Fashion: From Concept to
Consumer

Author

Martin Kunj
Cynthia R. Easterling and Marian H.Jernigan
Gini Stephens Fring

Course Outcomes

At the end of the course, the students will:

- have the detailed knowledge including the function of Merchandiser;
- have learnt the basic concept of retailing and wholesaling, pricing strategies, pricing components etc.
- Understand Product line planning, Visual merchandising
- be able to know the budgeting, dollar and unit planning

PCC–FAE–208G Colour and Design Concepts

Course code	PCC–FAE–208G				
Category	Professional Core Course				
Course title	Colour and Design Concepts				
Scheme and Credits	L	T	P	Credits	Semester–IV
	3	0	0	3	
Branch	Fashion and Apparel Engineering				
Class work	25 Marks				
Exam	75 Marks				
Total	100 Marks				
Duration of Exam	03 Hours				

Pre–requisites: Basic Science subjects of Physics, Chemistry and Mathematics **Course Objectives:**

The course is designed to make the students aware of:

- basic concepts of Colour and specifications of colour, colour theories, colour wheels
- colour contrasts, elements of design
- composition of designs, symmetry of designs
- patterns, border designs

Note: Examiner will set nine questions in total. Question one will be compulsory. Question one will have 06 parts of 2.5 marks from all units and remaining eight questions of 15 marks each to be set by taking two questions from each unit. The students have to attempt five questions in total, first being compulsory and selecting one from each Unit.

UNIT I

Colour – Concept and specifications of colour, Light and colour phenomenon, Colour theories as light theory, pigment and Brewster colour theory. Introduction to Colour quantification systems as Munsell, Ostwald, Natural, CIE. Modification of colours as formation of tint, shades and coloured grays etc. Colour intensity charts, Psychological effects of colour as warm and cool colours, Concept of colour harmony, its type and different effects

UNIT II

Colour combination techniques: monochromatic, complementary etc. and their effects in garment designing, Colour contrast in garments as low, medium and high , Colour contrast and types, Application of colour combination and harmony in designing of clothing/fabric. Colour forecasting,

UNIT III

Design process, craftsmanship in designing; Elements and principle of design and applications in garment designing, Types of design elements and effect in apparel designing, Introduction to types of motifs: Geometrical and conventional, Symmetry – principle, concepts perspectives and its application, Placement of motifs, horizontal, vertical and glide directions

UNIT IV

Simple Weave and colour effects, Compound colour and weave effects – stripe colour and weave effect, Check colour and weave effect, Special colour and weave effect, figured colour and weave effect. Classification of border patterns: types and details of all over patterns. Border types and styles in traditional Indian textiles

Reading List

Title

Watson's Textile Design and colour
Colour mixing Bible
Colour: right from the start

Author

Grosciki
Watson – Guptill Publication
Watson – Guptill Publication

Course Outcomes:

After completion of the course, students will be able to:

- understand the basic concepts of knitting and its types
- identify and understand the role of different knitting elements
- comprehend the major knitted fabric structures, their properties and production
- understand the geometry of knitted structure and its relevance

PCC–FAE–209G Apparel Production-II

Course code	PCC–FAE–209G				
Category	Professional Core Course				
Course title	Apparel Production-II				
Scheme and Credits	L	T	P	Credits	Semester–IV
	3	0	0	3	
Branch	Fashion and Apparel Engineering				
Class work	25 Marks				
Exam	75 Marks				
Total	100 Marks				
Duration of Exam	03 Hours				

Pre–requisites: Basic Science subjects of Physics, Chemistry and Mathematics

Course Objectives:

The course is designed to make the students understand:

- basic concepts of post cutting operations, stitch forming mechanisms
- different types of sewing needles, sewing threads
- different types of seams and stitches

Note: Examiner will set nine questions in total. Question one will be compulsory. Question one will have 06 parts of 2.5 marks from all units and remaining eight questions of 15 marks each to be set by taking two questions from each unit. The students have to attempt five questions in total, first being compulsory and selecting one from each Unit.

UNIT I

An overview of post cutting room operations – ticketing, bundling, material handling from cutting room to sewing room; General introduction of sewing room operations; An overview of history, evolution and modernization in sewing machineries. Description of components & functions of SNLS Sewing machine, Stitch formation mechanism, Drop feed mechanism of SNLS. Relative merits & demerits of SNLS machine and associated feed mechanism.

UNIT II

Factors affecting sewing performance, selection criteria for sewing machine needle & sewing threads; Needles – Types of needles for Textile and Non textile materials, Hand and Sewing machine needles, Metallurgy and Shapes of Needles, Needle cutting Index, Mechanical damage to fabric by needle heating & remedial measures. Sewing Threads – Influence of sewing thread selection & properties on seam performance & garment serviceability; Fibre types, twist direction & plying, thread composition & construction – staple, continuous, core-spun, air-entangled, texturised. Thread packages –

classification based on thread constructions, machine

types & end usages Metric & cotton ticket numbering system, sewing thread cost evaluation. Sewing Problems- Problems related to stitch formation- missed stitches, skipped stitches, and variable stitch density. Damage to fabric along the stitch line, Seam pucker due to sewing thread, fabric properties inaccurate pattern cutting.

UNIT III

Seam Classifications- Notations, distinguishing factors and applications, Terminologies – Seam Allowance, Seam Let out, Extended Seam Allowances, Exposed and enclosed seams, Inside and Outside Curved Seams, Stitched and Fused Seams, Stitched and Glued Seams. Seam Finishes – Definition and Requirement, Types of Seam Finishes – Book Seam Finish, Net Bound Seam Finish, Single ply bound seam finish, Double stitched seam finish, Glued seam finish, pinked seam finish.

UNIT IV

Stitch types & classifications- designation, appearance & application areas; Distinction between hand & machine stitches – appearance, method of construction & end usage. Overview of different hand stitches like – Back stitch, half back stitch, Modified back stitch, Blanket stitch, Blind stitch, Button hole stitch. Overview of different machine stitches like Machine stitches - Lettuce edging, Zigzag stitch, Over edge stitch, Purl edging, Picot edging, Safety Stitch, Scallop over edge, Shirring stitch, Elasticised shirring.

Reading List

Title	Author
Clothing Technology	Carr and Latham
Apparel manufacturing handbook	Jacob Solinger

Course Outcomes:

After completion of the course, students will:

- have the knowledge of sewing machines, sewing needles and sewing threads
- be able to identify seams and stitches and their appearance, applications and properties,

ESC–TT/TC/FAE –202 G Computer Aided Textile Designing Lab

Course code	ESC–TT/TC/FAE–202 G				
Category	Engineering Science Course				
Course title	Computer Aided Textile Designing				
Scheme and Credits	L	T	P	Credits	Semester–IV
	0	0	2	1	
Branch	Textile Technology, Textile Chemistry, Fashion & Apparel Engineering				
Class work	25 Marks				
Exam	25 Marks				
Total	50 Marks				
Duration of Exam	03 Hours				

Pre–requisites: Basic Science subjects of Physics, Chemistry, Mathematics and Computer **Course Objectives:**

- This Lab course is designed to impart first-hand experience of handling CAD softwares for Textile Designing thus serving as a bridge between theory and practice.

Contents:

Warp and Weft Colour Pattern designing using Elements of design and Principles of designs, like line, dot, print etc.; Types of lines and their application in designing; Types of dots as polka dot, etc. General idea about weave and colour effect; Composition of designs–by Geometric ornamentation by the conventional treatment of natural and artificial forms and by the adoption and reproduction of earlier designs; Geometric ornamentation, construction of symmetrical figures, Reversing inclined figures; Practical Application of Elements of Design and Principles of design using CAD.

Weave designing using Arrangement of figures- unit-repeating design, the drop device, drops reverse designs, sateen system of distribution (with reference to half drop, diamond base, ogee base, rectangular base lines). Construction of designs from incomplete repeat; Border designing: Study of pattern–historical precedents. Symmetry–principle concepts, perspectives and its application, classification of motifs, border patterns, all over patterns; CAD practical application in Weave designs, arrangement of figures, Border designing and Motif and repeat making.

List of Experiments:

1. To study different selection option tools in Adobe Photoshpe
2. To study imge adjustment modes and tools in graphic designing software

3. To study different image transformation tools

4. To create motif vector by print designing
5. To create shade cards of above designed print
6. To create textile patterns for designed prints
7. To study different colour modification tools
8. To drape designed fabric patterns on apparels and fashion accessories
9. To design fashion show ramp using previously designed apparels and accessories
10. To design technical and graphical parameters of yarn
11. To develop fabric using above designed yarn as per the desired weave parameters

Course Outcomes:

The students will be able to practically handle:

- elements and principles design using CAD systems;
- arrangement of figures and motifs using various methods
- geometrical ornamentation
- placement of patterns in symmetric and asymmetric way;
- creation of Border designs.

LC–TC/FAE–204G Fabric Formation Lab

Course code	LC–TC/FAE–204G				
Category	Professional Core Course				
Course title	Fabric Formation Lab				
Scheme and Credits	L	T	P	Credits	Semester–IV
	0	0	2	1	
Branch	Textile Chemistry, Fashion and Apparel Engineering				
Class work	25 Marks				
Exam	25 Marks				
Total	50 Marks				
Duration of Exam	03 Hours				

Pre–requisites: Basic Science subjects of Physics, Chemistry and Mathematics

Course Objectives:

- This Lab course is designed to impart first-hand experience of fabric formation techniques, demonstration of working principles of winding, warping, drawing-in and weaving thus serving as a bridge between theory and practice.

Contents

Basic principles of woven fabric analysis: estimation of data for cloth reproduction, Identification of yarns and materials used in their construction. Weave analysis, Sett, Cover factor, Count and weight calculations for simple and compound woven structures, Specifications of standard woven fabric.

Discussion and Demonstration of various machines and of manufacturing processes involved in converting yarns to fabric winding, warping, sizing, Drawing-in, weaving by Hand looms, Plain Looms; Automatic Shuttle Looms, Shuttleless Looms and Knitting, Passage of material through them and brief study of their essential components and mechanisms; Simple production and efficiency calculations pertaining to these processes.

List of Experiments:

- Study of Winding Process
- Study of Warping Process
- Study of Slasher Sizing
- Study of Drawing-in Process
- Study of Pirn Winding Process
- Introduction to Shuttle Loom
- Study of Conventional Shedding Mechanisms
- Study of Shuttle Picking Mechanisms

- Study of Crank Beat-up Mechanism in Shuttle loom
- Analyse different types of weave designs
- Analyse different constructional parameters of woven fabrics like yarn linear density, end and picks per unit length, fabric cover, fabric areal density

Course Outcomes:

After completion of the course, students will be able to:

- correlate between theory and practice of the concept of weaving preparatory methods
- visualise the layout and structure of weaving preparatory machines along with their primary components
- visualise the mechanisms of primary motions of shuttle weaving machines and comprehend their settings
- develop practical skills relevant to industrial practices.
- recognise different types of weave designs
- analyse different constructional parameters of woven fabrics like yarn linear density, end and picks per unit length, fabric cover, fabric areal density

LC-FAE-205G Colour and Design Lab

Course code	LC-FAE-205G				
Category	Professional Core Course				
Course title	Colour and Design Lab				
Scheme and Credits	L	T	P	Credits	Semester-IV
	0	0	2	1	
Branch	Fashion and Apparel Engineering				
Class work	25 Marks				
Exam	25 Marks				
Total	50 Marks				
Duration of Exam	03 Hours				

Pre-requisites: Basic Science subjects of Physics, Chemistry and Mathematics
Course Objectives:

- This Lab course is designed to impart first-hand experience of colour illusions, warm and colour effects, floral, geometrical designs, colour and weave effects. It also helps students practically understand in-depth working of placement of figures and motifs

Contents:

Specification of color with hue, value and chroma; color combinations according to pigment theory of colour. Arrangement of the primary, secondary and intermediate colours in the Brewster's theory. Colour illusions, warm and cool colour effects, Modification of pigment colour with formation of tint, shades and coloured graysetc, Colour and gray intensity charts; Types of lines, dots and curves and their effects; Designing of floral, geometrical, abstract and border designs; Enlargement and reduction of designs; Simple Weave and colour effects. Compound colour and weave effects – stripe colour and weave effect, Check colour and weave effect, Special colour and weave effect, figured colour and weave effect. Placement of figures and motifs – half drop, double $\frac{1}{2}$ drop, diamond base, ogee base, rectangular, horizontal, vertical,

List of Experiments:

1. Specification and modification of pigment colour

- To understand specification of colour
- To develop tins and shades of colour
- To develop varying values of chroma
- Mixing of different coloured tones

2. Development of gray and coloured intensity charts.

- Development of gray intensity chart
- Development of colour pallette including varying values

3. To study effect of colour illusion

- Colour filling with warm and cool colours to create illusion

4. Motif designing following different colour combination schemes

- To design motif using monochromatic colour scheme
- To design motif using complementry (split, double split, triadic) colour scheme
- To design motif using natural colour system

5. To study geometrical ornamentation of figures

- Placement of repeats according to bi / tri and tetra symmetry

6. To study placement of figures and motifs on different bases

- Arrangement of figures on diamond ,ogee, satin and rectangular base

7. To study colour design effects through weaving

- Simple Weave and colour effects.
- Compound colour and weave effects
- Special colour and weave effect
- Figured colour and weave effect.

Course Outcomes:

The students will be able to practically handle:

- elements and Principles design using CAD systems;
- arrangement of figures and motifs in various methods
- geometrical ornamentation
- placement of Patterns in symmetry and asymmetry way;
- creation of Border designing.

LC-FAE-206G Garment Manufacturing Lab

Course code	LC-FAE-206G				
Category	Professional Core Course				
Course title	Garment Manufacturing Lab				
Scheme and Credits	L	T	P	Credits	Semester-IV
	0	0	2	1	
Branch	Fashion and Apparel Engineering				
Class work	25 Marks				
Exam	25 Marks				
Total	50 Marks				
Duration of Exam	03 Hours				

Pre-requisites: Basic Science subjects of Physics, Chemistry and Mathematics **Course Objectives:**

- This Lab course is designed to impart first-hand experience of the recognition of different aids, tools and equipment for cutting, sewing techniques, practice of using sewing needles, sewing threads and embroidery threads. This skill will help the students for production and planning of garments as well as utility of trims and accessories.

Contents:

Introduction to different aids, tools and equipments for cutting and their applications as well; Preparation of different types of pattern and pattern layout; Selection for different types of needle according to stitching components;

Selection procedure for different types of sewing and embroidery threads; Utility of different Aids and tools for Garment Construction, Basting Operation; Study of sewing machineries, Different tools and Work aids, Application of different trims and components. Study of Fusing and pressing machine procedure

List of Experiments:

1. To recognise the different aids, tools and equipment for cutting and sewing
2. To prepare different patterns and practice of pattern lay outs
3. To select different types of sewing needles and sewing threads for stitching purposes
4. To practice utility of different aids and tools for garment construction
5. To practice on Basting operations
6. To study of different sewing machines

7. To study on application of trims and accessories

8. To study of fusing and pressing machine

Course Outcomes:

After completion of the course, students will be able to:

- recognise different types of tools, aids and equipment
- prepare different patterns and practice of pattern lay outs
- develop practical skills relevant to garment construction, etc.

MC-108G Essence of Indian Knowledge Tradition

Course code	MC-108G				
Category	Mandatory Course				
Course title	Essence of Indian Knowledge Tradition				
Scheme and Credits	L	T	P	Credits	Semester-IV
	0	0	2	0	
Branch	Textile Technology, Textile Chemistry, Fashion & Apparel Engineering				
Class work	50 Marks				
Exam	00 Marks				
Total	50 Marks				
Duration of Exam	00 Hours				

Pre-requisites: Basic Science subjects of Physics, Chemistry and

Mathematics **Course Objectives:**

The course is designed to impart the following:

Course objective

The course aims at imparting basic principles of thought process, reasoning and inferencing. Sustainability is at the core of Indian Traditional knowledge Systems connecting society and nature. Holistic life style of yogic science and wisdom capsules in Sanskrit literature are also important in modern society with rapid technological advancements and societal disruptions. Part-I focuses on introduction to Indian Knowledge Systems, Indian perspective of modern scientific world-view, and basic principles of Yoga and holistic health care system.

Course Contents

- Basic structure of Indian Knowledge System: अष्टादशविद्या -४वेद,४उपवेद (आयुर्वेद, धनुर्वेद, गन्धर्ववेद, स्थापत्य आदि) ष्वेदांग (शिक्षा, कल्प, निरुक्त, व्याकरण, ज्योतिष, छंद) ४ उपाङ्ग (धर्मशास्त्र, मीमांसा, पुराण, तर्कशास्त्र)
- Modern Science and Indian Knowledge System
- Yoga and Holistic Health care
- Case studies

