DKTE Society's

TEXTILE & ENGINEERING INSTITUTE

Rajwada, Ichalkaranji 416115

(An Autonomous Institute)

DEPARTMENT: TEXTILES

CURRICULUM

B. Tech. Fashion Technology Program

Third Year

With Effect From

2022-2023

DKTE

Promoting Excellence in Teaching
Learning & Research

Third Year B. Tech Fashion Technology
Semester- V

Sr. No.	Course Code	Name of the Course	Group	Teaching Scheme				Credits
				Theory Hrs/ Week	Tutorial Hrs/ Week	Practical Hrs/ Week	Total	
1	TFL331	Computer Programming	ESC	3			3	3
2	TFL332	Knitting Technology	PCC	3			3	3
3	TFL333	Intellectual Property Rights	ESC	3			3	3
4	TFL334	Garment Construction - I	PCC	2			2	2
5	TFL335	Apparel Machinery and Equipment's	PCC	3			3	3
6	TFL336	Fashion Art and Design	ESC	3			3	3
7	TFP337	Computer Programming Lab	ESC			2	2	1
8	TFP338	Knitting Technology Lab	PCC			2	2	1
9	TFP339	Garment Construction - I Lab	PCC			4	4	2
10	TFP340	Apparel Machinery and Equipment's Lab	PCC			2	2	1
11	TFP341	Fashion Art and Design Lab	ESC			2	2	1
12	ATL301	Computer Operating Skills	MC	2			2	--
13	ATL303	Chinese Language	HSMC	2			2	--

Group Details

HSMC: Humanities, Social Science & Management Courses
BSC: Basic Science Courses
ESC: Engineering Science Courses
PCC: Professional Core Courses
PEC: Professional Electives Courses
OEC: Open Elective Courses
PST: Project / Seminar / Ind. Training
MC: Mandatory Courses

DKTES Textile and Engineering Institute, Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – V)
TFL331: COMPUTER PROGRAMMING

Teaching Scheme:	Credits	Evaluation Scheme:
Lectures: 03 Hrs/Week	03	SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks

Course Objectives:

- To study database management system and SQL commands.
- To understand VB.Net IDE, various types of objects & programming constructs in VB.Net.
- To study different categories of data and data science process.
- To study data visualization tools.

Course Outcomes:

At the end of the course students have understood

- Design database management system and write SQL commands.
- Develop simple application programs in VB.Net.
- Demonstrate data science process.
- Develop application using data visualization tool.

Course Contents

Unit I	**Database Management System**	**08 Hours**

Introduction to database, database management system; Relational database management systems; Structured Query Languages (SQL) – various commands/ clauses/ operators- create table, insert into, alter table, drop table, update, delete; queries- select, from, where clause; operators- mathematical, comparison, logical; aggregate functions; clauses- order by, group by, having

Unit II	**Introduction to .Net Framework and VB.Net Language**	**08 Hours**

Introduction to .NET, .NET Framework features & architecture. Introduction to Visual Studio, VB.NET Integrated Development Environment, Project Basics, Event driven Programming.
The VB.NET Language - variables, data types, variables declaration, scope & lifetime of a variable, constants, operators and expressions, arrays, types of arrays

Unit III	**Conditional Branching, Looping and Procedures**	**08 Hours**

Conditional branching statements- simple if else, nested if else, select case; Looping statements- Do while, Do until, While and For loop; Procedures- Subroutines, Functions and their declaration; Msgbox & Input box

Unit IV	**Designing User Interface & Database Connectivity**	**06 Hours**

Working with Forms: Loading, showing and hiding forms, controlling one form within another.
Methods, properties, events and working of basic controls-Textbox, Label, Button, List box, Combo box, Checkbox, Picture Box, Radio Button, Panel, Timer, Dialog controls. Database connectivity

Unit V	**Introduction to Data Science**	**04 Hours**

Introduction, benefits & uses of data science and big data; Categories of data- structured, unstructured, natural language, machine generated data, graph based or network data, audio, image, video, streaming data; Data science process

Unit VI	**Data Visualization Methods and Tools**	**05 Hours**

Introduction- ugly, bad and wrong figures; Visualizing data- mapping data on aesthetics, types of data, scales map, data values on aesthetics; Co-ordinate system & axes- cartesian co-ordinates, nonlinear axes; Study of data visualization tools

References Books:

1. Database Management System by Korth, Sudarshan, Silberchitz; McGraw Hill Publication
2. VB.NET Programming Black Book by Steven Holzner– Dreamtech Publications.
3. Mastering VB.NET by Evangelos Petroutsos- BPB Publications
4. Introducing Data Science by Cielen, Meysman, Ali; Dreamtech Publications
5. Fundamentals of Data Visualization by Wilke, O'reilly; Shroff Publication

DKTES Textile and Engineering Institute, Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – V)
TFL332: KNITTING TECHNOLOGY

Teaching Scheme:	Credits	Evaluation Scheme:
Lectures: 03 Hrs./Week	03	SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks

Course Objectives:

- To explain basic terms, circular knitting machine details
- To explain circular weft knitted fabric structure and calculations
- To explain flat knitting machine details
- To explain warp knitting machine details, calculations and warp knitted fabric structure

Course Outcomes:

At the end of the course students have understood -

- Basic terms, circular knitting machine details
- Circular weft knitted fabric structure and calculations
- Flat knitting machine details
- Warp knitting machine details, calculations and warp knitted fabric structure

Course Contents

Unit I	Circular Weft Knitting	09 Hours

Introduction to Knitting:
Types of knitted fabrics, their applications, properties and basic structure of warp and weft knitting. Terms and definitions used in knitting. Comparison of knitting with woven fabric with respect to production and properties. Concept of hand knitting. Evolution of knitting from hand to machine knitting. Concept of flat and circular knitting.

Circular Weft Knitting:
Passage of yarn through circular weft knitting machine.
Essential elements of knitting machine – yarn supply arrangement, loop forming arrangement and fabric take down mechanism.
Knitting cycle of weft knitting machine.

Unit II	Weft Knitting – Fabric Structure	07 Hours

Principle stitches such as Knit, Tuck, Miss and their representation and their effect on fabric properties.
Types and properties of knitted fabrics such as single jersey, double jersey (Interlock, Rib and Purl). Manufacturing process of these fabrics. Conditions for the use of delayed and synchronized timings.
Concept of representing fabric design, needle order, cam order.
Basic designs and the derivatives of Single Jersey fabric – 1 x 1 cross - miss, lapique, longitudinal tuck stripes, plain pique.
Basic design and the derivatives of Rib – milano, half milano, cardigan, half cardigan, double cardigan, Swiss double pique and French double pique.
Basic design and derivatives of Interlock- Interlock Pique, Texi pique, Pintuck, Interlock super-roma, Bourrelet

Unit III	Flat Knitting	04 Hours

Basic elements and their functions of flat knitting machine. Hand and machine operated flat knitting machines and their knitting actions.

Machine operation for various stitches such as Miss, Tuck, Transfer, and Drop Stitch.

Design with and without needle selection, bed racking, new formed and transfer loop for hand and power operated machines. Concept of seamless knitting

Unit IV	Warp Knitting Technology	06 Hours

Comparison of weft and warp knitting. Passage of yarn through warp knitting machine.
Essential elements of warp knitting machine such as yarn supply arrangement, loop forming mechanism and fabric take down mechanism.
Knitting cycle of Tricot and Raschel warp knitting machine. Patterning Mechanism

Unit V	Warp Knitted Fabric Structure	08 Hours

Principle stitches of warp knitting like Tricot, Pillar or chain, In-Lay, blind, 2 and 1 lapping, longer lapping, Atlas stitch,
Study and representation of single bar fabric,
Study and representation of two guide-bar fabrics like Full Tricot, Locknit, Satin, Reverse Locknit, Shark Skin and Queen's cord
Study and representation of three and multi guide-bar structures.
Weft insertion techniques, Terry technique, Net fabric manufacturing

Unit VI	Calculations, quality control and Advances in Knitting	05 Hours

Circular Knitting Calculations – Fabric weight (grams per square meter and grams per meter, estimation of width of fabric), Circular knitting machine production calculations (length and weight per unit time)
Calculation of warp Knitting – basic terms used like rack, run-in, run-in ratio, etc. Fabric weight calculation, Warp Knitting Machine Production calculations (length and weight per unit time)
Fabric defects in Knitting and their remedies. Yarn quality requirements for knitting
Concept of jacquard used in weft knitting & loop transfer
Advanced features of knitting machine

References Books:

1. Knitting Technology by Prof. D. B. Ajgaonkar
2. Circular Knitting by Dr. Chandrashekhar Iyer, Mammel and Schach
3. Knitting Fundamentals, Machines, Structure and Developments by N. Anbumani
4. Knitting Technology by Mr. D. Spenser
5. Warp Knitting by Dr. S. Raz
6. Flat Knitting by Dr. S. Raz

DKTES Textile and Engineering Institute, Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – V)
TFL333: INTELLECTUAL PROPERTY RIGHTS

Teaching Scheme:	Credits	Evaluation Scheme:
Lectures: 03 Hrs/Week	03	SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks

Course Objectives:

- To describe concept of IPR and its implementation.
- To describe various means of IPR protection
- To describe administration of IPR
- To describe transfer, infringement precaution and cyber space while dealing with IPR

Course Outcomes:

At the end of the course students have understood

- Explicate concept of IPR and its implementation.
- Explain various means of IPR protection
- Elucidate administration of IPR
- Comprehend transfer, infringement precaution and cyber space while dealing with IPR

Course Contents

Unit I	**Introduction to IPR**	**05 Hours**

Concepts of creativity, invention, and innovation; basic types of properties, movable, tangible and intellectual. Protection of different types of properties and introduction to various means of protection of IPR. Establishment of WIPO – objective and activities.

Unit II	**Copyrights and related rights**	**06 Hours**

Things covered by copyrights, rights protected by copyrights, acquiring copyrights, transfer of copyrights, Limitations of copyrights, Enforcement of rights, Benefits of copyrights. Related copyrights – Performers, Producers, Broadcasting

Unit III	**Trademark, geographical indication and industrial design**	**08 Hours**

Trademark: Concept and characteristics of trademark, concepts of service mark, collective mark and certification marks. Registration of trade mark, benefits of trademark.
Geographical indication (GI): Concept, distinction between trademark and GI, appellations of origin and geographical indications, method of protection under GI.
Industrial design (ID): concept, distinction between trademark and ID, protection method of ID and its benefits.
WIPO administration - Madrid System, Hague System and Lisbon Agreement.

Unit IV	**Patents and IPR transfer**	**08 Hours**

Purpose of a patent, benefits of obtaining a patent, characteristics of things patented, patent registration and validity terms, nature of the international patent system. Concept of trade secret. Drafting of patents. WIPO Patent Cooperation Treaty.
Intellectual right transfer: Licensing, Franchising and Merchandising

Unit V	Unfair competition and Cyber intellectual property	06 Hours

Fair competition and its need, introduction to anti-trust and unfair competition laws, unfair activities like - causing confusion, misleading, discrediting competitors, disclosure of secret information, taking advantage of another's achievements (free riding) and comparative advertising.
Cyber-IP: Introduction to cyber-IP, Intellectual property and cyberspace; emergence of cybercrime, software piracy, data protection in cyberspace; e-commerce.

Unit VI	Protection of new variety of plant, Traditional knowledge	06 Hours

Need of protection of new variety plants, role of UPOV, breeder's rights. Traditional forms of creativity and innovation, need and documentation of their protection. Adaption of existing IPR

References Books:

1. Intellectual Property Rights by S.R.A. Rosedar, LexisNexis Publication, ISBN 978-9351432463.
2. Intellectual Property Rights by Neeraj Pandey & Khushdeep Dharni, Prentice-Hall of India Pvt. Ltd publication, ISBN 978-8120349896.
3. Intellectual Property: The Law of Trademarks, Copyrights, Patents, and Trade secrete by Deborah E. Bouchoux ,4th edition, maxwel publication ISBN 978- 8131528976.
4. Intellectual property rights: unleashing the knowledge economy by Prabuddha Ganguli, McGraw Hill Education publication, ISBN 9780070077171.
5. Intellectual Property Rights in India: General Issues and Implications by Prankrishna Pal, Deep Publications, ISBN- 978-8189915872.
6. Intellectual Property: Patents, Copyrights, Trademarks & Allied Rights by William Cornish, 8th edition, Maxwel publication, ISBN-978-0414025592.

DKTES Textile and Engineering Institute, Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – V)
TFL334: GARMENT CONSTRUCTION- I

Teaching Scheme:	Credits	Evaluation Scheme:
Lectures: 02 Hrs/Week	02	SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks

Course Objectives:

- To understand Pattern layout process for various products.
- To Create pattern and understand machine layout for various products
- To understand importance of Productivity and work study in garment construction
- To understand calculations related to garments.

Course Outcomes:

At the end of the course, students will be able to

- Understand Pattern layout process for various products.
- Create pattern and understand machine layout for various products
- Understand importance of Productivity and work study in garment construction
- Understand calculations related to garments.

Course Contents

Unit I	**Pattern Layout**	**03 Hours**

Various types of layouts used in apparel industry for different products. Pattern laid rules. Common method of layout for asymmetric design, stripes, checks and one way design for different products. Techniques for stripes, checks and plaids matching.

Unit II	**Measurements and fitting**	**03 Hours**

SOP for dummy measurements and apparels. Tech-pack for various products, Principles involved in fitting for Men's wear and women's wear.

Unit III	**Drafting of Different Garments**	**04 Hours**

Patterning, Cutting, Construction and Economical Layout for – Shirt, trouser, short, Salwar and Kameez, Blouse and intimate apparels.

Unit IV	**Machine layout in Garment Construction**	**05 Hours**

Types of machines and layout for different apparels, Operation breakdown, work aids and attachments.

Unit V	**Productivity and work study in garment construction**	**06 Hours**

Productivity and its importance, Different techniques to improve productivity, work study approach, Work Measurement, Time study, SAM, SMV, Takt time, Pitch time, PMTS, GSD, Ergonomics.

Unit VI	**Calculations**	**05 Hours**

Fabric Consumption, Thread consumption, SMV, SAM, Takt time, Pitch time, operator and line efficiency calculation for various products.

References Books:

1. Pattern making for fashion design by Helen Joseph Armstrong fifth edition, Pearson Education, Inc. ISBN-10: 0-13-606934-7
2. Pattern grading for women's clothes by Gerry Cooklin, Blackwell Publishing. ISBN 0-632-05692-4
3. Metric pattern cutting for women's wear by Winifred Aldrich, Blackwell Publishing. 5th edition, ISBN: 978-1-118-37205-0
4. Metric pattern cutting for men's wear by Winifred Aldrich, Blackwell Publishing. 5th edition, ISBN 978-81-265-3241-4.
5. Draping for fashion design by Hilde Jaffe and Nurie Relis, fourth edition, Pearson Education, Inc. ISBN 978-81-317-2696-9

DKTES Textile and Engineering Institute, Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – V)
TFL335: APPAREL MACHINERY AND EQUIPMENTS

Teaching Scheme:	Credits	Evaluation Scheme:
Lectures: 03 Hrs/Week	03	SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks

Course Objectives:

- To explain the classification of sewing machinery
- To describe the various parts and adjustment of a single needle lockstitch & overlock machine.
- To describe the stitch, sewing needle and sewing thread.
- To interpret the work aids and latest developments in apparel production machinery

Course Outcomes:

At the end of the course students have understood

- Understand the classification of sewing machinery according to bed types, stitch types and material wise.
- Understand the various parts, features and adjustment of single needle lock stitch and overlock machine.
- Categorize the stitch, sewing needles and sewing threads requirements and its application.
- Describe the work aids and latest developments in apparel production machinery.

Course Contents

Unit I	**Introduction to Sewing machines**	**05 Hours**

History of sewing machines and development. Sewing machinery nomenclature - classification according to bed types, stitch types (hook or looper), material wise (extra light to heavy weight), product wise.

Unit II	**Sewing machine parts, functions and adjustment**	**10Hours**

Major parts of sewing machinery, functions and adjustment. UBT and non-UBT: Single Needle Lock Stitch Machine, Double Needle Lock Stitch Machine, Special Sewing Machines - Overlock Machine, Bar Tacking Machine, Buttonhole Sewing Machines, Button Sewing Machine, Feed of Arm Sewing Machine, Blind Stitch Machine. Machine handling & Maintenance

Unit III	**Stitch-Forming and Feed Mechanisms**	**10 Hours**

Thread Control Devices, sewing needle and sewing thread, thread consumption, thread routing. Lower Stitch-Forming Devices, Throat Plate, Stitch Formation Sequence in Lock Stitch Machine. Elements of Feeding Mechanism. Types of Feed Mechanism.

Unit IV	**Work Aids**	**07 Hours**

Work-aids and Special Attachments to Sewing Machines, functions of pullers, guides and folders compensating presser foots- left, right, double; feller, hemmer etc. Work aid designing. Sewing machine safety regulations.

Unit V	**Cutting and Mid processing machines**	**04 Hours**

Manual and automatic spreading, cutting, fusing and pressing machinery. Features and specifications, Application according to use. Collar, Cuff turning & pressing, Collar contour cutting machine, Pocket creasing, attaching machine.

Unit VI	Latest developments/automation	03 Hours
Latest developments/automation in production machinery, Computer controlled cutting, sewing, folding machinery. Automation in material handling and use of robotics in apparel industry.		

References Books:

1. Mr. R. Rathinamoorthy et al, “Apparel machinery Equipments”, Woodhead publication 2015.
2. Juki machine manual for single needle lockstitch machine by Juki machine
3. Jacob Solinger., “Apparel Manufacturing Handbook ", Van Nostrand Reinhold Company (1980).
4. Peyton B .Hudson., " Guide to Apparel Manufacturing ", Media Apparel Inc (1989) ISBN: 0 945116 08-X.
5. Carr.H, Latham. B., “The Technology of Clothing Manufacture ", Blackwell Scientific Publications (1988).

DKTES Textile and Engineering Institute, Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – V)
TFL336: FASHION ART AND DESIGN

Teaching Scheme: Lectures : 03 Hrs/Week	Credits 03	Evaluation Scheme: SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks

Course Objectives:

- Explain fashion design process.
- Explain Indian and world fashion.
- Describe various design details and their application for different body shapes and sizes.
- Explain dress as non-verbal communication.

Course Outcomes:

At the end of the course students will be able to

- Explain fashion design process.
- Apply knowledge of Indian and world's historical costumes to design contemporary products.
- Recommend design details for various body shapes and sizes.
- Appraise dress as nonverbal communication.

Course Contents

Unit I	Fashion Design Process	06 Hours

Flowchart of fashion design process – Inspiration, research, mood board / story board, colour & texture, fabric swatch collection, pre-production illustrations, technical illustrations, postproduction illustrations, cost sheet, etc. Client Brief Analysis, Innovation, Types of innovation, Innovation cycle, Research Inspirations, Research direction, Designing process, Prototyping, Collection / Range, Promotion.

Unit II	Fashion Movement	06 Hours

Fashion movement - meaning, Trickle Down theory – Veblen's Theory, Simmel's Theory, Trickle Across Theory, Trickle Up Theory. Fashion Careers.

Unit III	Study of Design Details	06 Hours

Necklines: Round, square, vee, boat, off shoulder, plunging, scoop, keyhole, one shoulder, halter, sweetheart, surplice, cowl, jewel, spaghetti, queen anne, bateau, etc.
Sleeves: set in, cap, roll up, raglan, kimono, puff, bell, petal, dolman, batwing, cape, leg-o-mutton, peasant, bishop, melon, lantern, flutter, etc.
Collars: Chelsea, shawl, pointed flat, peter pan, puritan, convertible, notched, wing, tuxedo, shirt, turtleneck, ruffle, mandarin, jabot, tie neck, etc.
Cuffs: Angled, round, two buttonhole, two buttons, straight, turn back, barrell, french, convertible, etc.
Pockets: Patch, patch with top stitching, flap, jetted, bound patch, shirt, welt, jetted with zip, shirred patch, double pocket, post box in patch, angled flap, etc.
Skirts: A-line, Godet, gypsy, straight, pencil, bubble, wrap, circular, draped, tulip, layered, etc.

Unit IV	Smart Dressing	06 Hours

Ensembles for ladies: pear body, diamond body, round body, hourglass body, inverted triangle body, straight body, plus size body, petite figure, problem areas, maternity wear.
Ensembles for gents: short & heavy body, short and thin body, tall and heavy body, tall and thin body, athletic body, and problem areas.
Smart dressing according to occasion.

Unit V	Dress & Image	06 Hours

Dress as Non-verbal communication, Dress and Image, Gender and Sexuality, Dress in human interaction, Dress in workplace, Race, Ethnicity and Social Class.

Unit VI	Study of Historical & Latest Fashion	06 Hours

Historical costumes: Greek, Egyptian, Roman and Indian costumes. Effect of World Wars on fashion. Fashion in late 20th century.
Study of latest fashion designers: Indian, French, Italian and American
Study of latest fashion: Latest fashion based on age, sex and socio-economic status.

References Books:

1. Fashion Design: Process, Innovation and Practice by Kathryn McKelvey and Janine Munslow (2003), Blackwell Publications. ISBN: 8126522984
2. Fashion Technology: Today and Tomorrow by Nirupama Pundir (2007), Mittal Publications. ISBN: 8183242030.
3. Past and Present Trends in Fashion Technology by Peter McClaud (2006), Abhishek Publications. ISBN 9788182473522.
4. How to be a Fashion Designer by Gladys Shultz (2010), Kessinger Publishing. ISBN: 1164476912.
5. Abu Jani and Sandip Khosla: A Celebration of Style by Sharada Dwivedi (2000), AJSK Publications. ISBN: 819012370X.
6. The Complete Costume History by Auguste Racinet (2006), Taschen Publication. ISBN: 3822850950.
7. Understanding Fashion by Elizabeth Rouse (1989), Blackwell Scientific Publication. ISBN: 0632018917.
8. The Meanings of Dress by Mary Lynn Damhorst, Kimberly A. Miller, and Susan Michelman (2005), Fairchild Books. ISBN: 1563673665.
9. Traditional Indian Textiles by Russel Gillow and Nicholas Barnard (1991), Thames and Hudson Ltd.
10. Costumes of India and Pakistan: A Historical and Cultural Study by S.N. Dar (1983), Stosius Inc/Advent Books Division. ISBN: 0865901910.
11. Indian Costume by G.S. Churye (1995), Popular Prakashan Pvt. Ltd. ISBN: 8171544037.
12. The Changing World of Fashion: 1900 to the Present by Corter Ernestine (1977), G. P. Putnam's Sons. ISBN: 0399119698.

DKTES Textile and Engineering Institute, Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – V)
TFP337: COMPUTER PROGRAMMING LAB

Lab Scheme: Practicals: 02 Hrs/Week	Credits 01	Evaluation Scheme: CIE: 50 Marks SEE: 50 Marks

List of Experiments

1	Design & analysis of DBMS using Oracle/ MS Access – Table creation, data insertion, update and delete.
2	Design & analysis of DBMS using Oracle/ MS Access– Data retrieval using Queries- various clauses, operators, aggregate functions.
3	Design & Implementation of user interface using VB.Net Framework.
4	VB.Net program for decision making statement.
5	VB.Net program for different loops.
6	VB.Net program for array.
7	VB.Net program for Timer, List box, Combo box control.
8	VB.Net program for Check box, Option button, Picture box control.
9	VB.Net program for Common Dialog Control.
10	VB.Net program for database connectivity.
11	Study of data visualization tool- applicaiton1.
12	Study of data visualization tool- applicaiton2.

Submission – Completed Journal.

DKTES Textile and Engineering Institute, Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – V)
TFP338: KNITTING TECHNOLOGY LAB

Lab Scheme: Practical: 02 Hrs./Week	Credits 01	Evaluation Scheme: CIE: 50 Marks

List of Experiments

1	Study of single jersey circular weft knitting machine – yarn supply arrangements, loop forming mechanism, takedown motion, Production calculation.
2	Study of double jersey circular weft knitting machine – yarn supply arrangements, loop forming mechanism, takedown motion, Production calculation.
3	Study and design setting of warp knitting machine – yarn supply arrangements, loop forming mechanism, takedown motion, Production calculation.
4	Study of flat knitting machine – yarn supply arrangements, loop forming mechanism, takedown motion. Design setting on power operated flat knitting machine
5	Design setting on single and double jersey circular weft knitting machine- Machine operation, cam and needle arrangements, yarn feeding and take down setting
6	Analysis of plain single jersey knitted fabric
7	Analysis of plain 1x1 rib fabric
8	Analysis of plain interlock fabric
9	Analysis of derivatives of single jersey fabric / double jersey fabric
10	Visit to circular knitting unit to observe its working and collect technical information

Submission – Completed Journal.

DKTES Textile and Engineering Institute, Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – V)
TFP339: GARMENT CONSTRUCTION-I LAB

Teaching Scheme: Practical: 04 Hrs /Week	Credits 02	Evaluation Scheme: CIE: 50 Marks SEE: 50 Marks

List of Experiments

1	Study of SOP for shirt or trouser measurement
2	Tech pack preparation for formal shirt or Formal Trouser
3	Prepare pattern for Formal shirt
4	Prepare pattern for Formal trouser
5	Layout Preparation for Formal shirt and Trouser
6	Layout Preparation for Formal trouser.
7	Stitching of Formal shirt
8	Stitching of Formal trouser.
9	Prepare cost sheet for stitched formal shirt or trouser
10	Operation breakdown of shirt or trouser
11	Patterning and stitching of any garment for men
12	Patterning and stitching of any garment for women

Submission – Completed Journal.

DKTES Textile and Engineering Institute , Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – V)
TFP340: APPAREL MACHINERY AND EQUIPMENTS LAB

Lab Scheme: Practical: 02 Hrs/Week	Credits 01	Evaluation Scheme: CIE: 50 Marks

List of Experiments

1	Study of various types of Spreading and cutting machines.
2	Study of various types of mid processing sewing machines.
3	Study different parts of sewing machine their nomenclature and function.
4	Study different types of sewing machine beds, work aids and attachment.
5	Study the major parts of sewing machines & its adjustment.
6	Study of sewing needles, sizes, and its adjustment on machine
7	Study of sewing threads- Types, size, twist, ply, substrate, and its manufacturing
8	Study of overlock sewing machine for working and construction
9	Study of feed off the arm machine for working and construction
10	Study of special sewing machines for working and construction.
11	Study of special sewing machines for working and construction.
12	Industry visit

Submission – Completed Journal.

DKTES Textile and Engineering Institute, Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – V)
TFP341: FASHION ART AND DESIGN LAB

Lab Scheme: Practicals: 02 Hrs/Week	Credits 01	Evaluation Scheme: CIE: 50 Marks

List of Experiments

1	Study of various types of body shapes and sizes.
2	Illustration of different types of necklines.
3	Illustration of different types of sleeves.
4	Illustration of various types of cuffs.
5	Illustration of different types of pockets.
6	Illustration of different types of collars.
7	Designing contemporary costumes based on historical Greek costumes.
8	Designing contemporary costumes based on historical Egyptian costumes.
9	Designing contemporary costumes based on historical Roman costumes.
10	Study of latest Indian fashion.
11	Study of current world fashion.
12	Study of dress as nonverbal communication.

Submission – Completed Journal.

DKTES Textile and Engineering Institute, Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – V)
ATL301: COMPUTER OPERATING SKILLS

Teaching Scheme: Lectures: **02 Hrs./Week**		Evaluation Scheme: **CIE: 50 Marks**

Course Objectives:

- To understand the fundamentals of computers, operating systems, and office suite
- To understand the practical application of Microsoft Office Word
- To understand the practical application of Microsoft Office Excel
- To understand the practical application of Microsoft Office PowerPoint

Course Outcomes:

At the end of the course, students will be able to

1. Describe the fundamentals of computers, operating systems, and office suite
2. Make the practical application of Microsoft Office Word
3. Make the practical application of Microsoft Office Excel
4. Make the practical application of Microsoft Office PowerPoint

Course Contents

Unit I	**Introduction to Computer**	**03 Hours**

Introduction to Computers and Operating Systems, Navigate Programs & Manage Windows, Keys & Keyboard Shortcuts, Files and Folders, Snips and Screenshots, Using and Searching the Internet.

Unit II	**Microsoft Word Beginner**	**04 Hours**

Introduction to Microsoft Word, Formatting Text, and Paragraphs, Working More Efficiently, Managing Lists, Adding Tables, Inserting Graphic Objects, Preparing to Publish a Document, Controlling Page Appearance.

Unit III	**Microsoft Word Intermediate and Advanced**	**09 Hours**

Microsoft Word Intermediate: Organizing Content Using Tables and Charts, Customizing Formats Using Styles and Themes, Inserting Content Using Quick Parts, Using Templates to Automate Document Formatting, Controlling the Flow of a Document, Simplifying and Managing Long Documents, Using Mail Merge to Create Letters, Envelopes and Labels.

Microsoft Word Advanced: Manipulating Images, Using Custom Graphic Elements, Adding Document References and Links, Securing a Document, Automating Repetitive Tasks with Macros.

Unit IV	**Microsoft Excel Beginner and Intermediate**	**09 Hours**

Microsoft Excel Beginner: Introduction to Excel, Creating Workbooks, Saving Workbooks, Navigating Workbooks, Page Setup & Print Options, Working with Rows, Columns and Cells,

Moving Data.

Microsoft Excel Intermediate: Formulas & Functions, Working with Sheets, Formatting Worksheets, Charts, Sorting and Filtering, Working with Views, Linking Files, Advanced Formula Creation, Pivot Tables, Additional Excel Features, Excel Shortcuts.

Unit V	Microsoft Excel Advanced	08 Hours

Introduction to Advanced Excel, Advance Excel Functions, Date and Time Functions, Text Functions, Logical Functions, Lookup Functions, Financial Functions, Statistical Functions, Connecting to External Data, Tables, Pivot Tables, Data Analysis, Graphs and Charts.

Unit VI	A Complete Guide to Microsoft PowerPoint	06 Hours

Getting Started with Microsoft PowerPoint, Working with Presentations, Working with Text, Tables, and Formatting Options, Working with Pictures, Shapes, Objects, Charts, and SmartArt, Transitions, Animations, Hyperlinks, and Actions, Working with Video and Audio in PowerPoint, Setting up and Running a Slideshow.

References Books:

1. Linda Foulkes, Learn Microsoft Office 2019: A comprehensive guide to getting started with Word, PowerPoint, Excel, Access, and Outlook, Packt Publishing Ltd., pp. 1-794, ISBN: 9781839210617
2. Derrick Richard, A Definitive Guide to Microsoft Excel 2019, Churchgate Publishing House, pp.1-241, ISBN: 9798628847794
3. Doug Lowe, PowerPoint 2019 for Dummies, John Wiley & Sons, Inc., pp. 1-371, ISBN: 9781119514190.

ATL303 : CHINESE LANGUAGE

Details of the Course Introduction

Department: Research Institute of International People-to- People Exchanges for Textile Industry of Wuhan Textile University

Credits	2	**Course Duration**	3 May, 2022-5 July, 2022
Course Title	A Chinese Culture Exploration Tour: Starting from Wuhan		
Prerequisites	No		
Course Description	This course is provided by Research Institute of International People-to-People Exchanges for Textile Industry. It is aimed at students from partner universities in the Belt and Road Alliance of Textile Higher Education who are interested in learning Chinese language and culture. The Chinese culture and its history is so rich that it is impossible to cover all the aspects in a short time. We explore Wuhan, an international metropolis with a history of 3000+ years, by combining the basic Chinese language learning and practice together. By learning this course, the students will be ableto avoid conflict and unpleasantness during their later study at a Chinese campus or contacts with Chinese.		
Delivered in	English		
Course Schedule	For Chinese language: 1. Overview of Chinese language 2. Introduction and Practice of Phonetics of Chinese language 3.Introduction of Grammar of Chinese language 4.Train and Practice of Chinese for Daily Life For culture part: 1. Wuhan City History 2. Wuhan as seen from literature and art works3.Science and technology development 4.Study in Wuhan and in China 5.Final exam		
Course Requirements	Class attendance, group discussion, oral presentation		
Teaching Methods	Lecture, seminar		
Grading	Attendance 60%, Oral presentation 20%, Exam on the date of the last lecture 20%		

Members of Teaching Team

Name	Gender	Professional Title	Responsibility
Lin Li	Female	Prof.	Course designer, Lecturer
Zhang Shangyong	Male	Dr. Prof.	Lecturer
Wu Hui	Female	Associate. Prof.	Lecturer
Li Douming	Male		Moderator
Li Liang	Female		Moderator

Third Year B. Tech Fashion Technology
Semester- VI

Sr. No.	Course Code	Name of the Course	Group	Teaching Scheme				Credits
				Theory Hrs/ Week	Tutorial Hrs/ Week	Practical Hrs/ Week	Total	
1	TFL351	Industrial Engineering	HSMC	3			3	3
2	TFL352	Styling and Forecasting	PCC	3			3	3
3	TFL353	CAD – CAM for Apparels	ESC	3			3	3
4	TFL354	Apparel Merchandising	PCC	3			3	3
5	TFL355	Garment Ornamentation	PCC	3			3	3
6	TFLOE1	Open Elective	OEC	3			3	3
7	TFP356	Industrial Engineering	HSMC		1		1	1
8	TFD357	Internship - I*	PST					3
9	TFP358	CAD – CAM for Apparels Lab	ESC			2	2	1
10	TFP359	Garment Ornamentation Lab	PCC			2	2	1
11	TFP360	Design Collection and Presentation Lab	PCC			2	2	1
12	ATL302	Professional Ethics	MC	2			2	

Group Details

HSMC: Humanities, Social Science & Management Courses
BSC: Basic Science Courses
ESC: Engineering Science Courses
PCC: Professional Core Courses
PEC: Professional Electives Courses
OEC: Open Elective Courses
PST: Project / Seminar / Ind. Training
MC: Mandatory Courses

List of Open Electives

MBLOE1: Costing
CSLOE13: ERP & E- Commerce
UALOE1: Innovations in Textiles
IELOE1: Production, Planning and Control
TQMOE1: Textile Quality Management (RSJ Inspection)

DKTES Textile and Engineering Institute , Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – VI)
TFL351: INDUSTRIAL ENGINEERING

Teaching Scheme: Lectures : 03 Hrs/Week	Credits 03	Evaluation Scheme: SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks

Course Objectives:

- To explain significance of Industrial Engineering
- To explain the importance of Production planning ,control and inventory control and different factors affecting on it.
- To explain work study, method study , Operational Research and how this is very useful tool to enhance the productivity and quality.
- To explain How Job evaluation and merit rating enhance the production rate?

Course Outcomes:
At the end of the course students have understood

- Understand importance of Industrial Engineering .
- Understand the factors affecting Production Planning and Control and inventory
- Understand and demonstrate method study, motion economy and operational research.
- Perform Job evaluation and merit rating for increasing the production rate.

Course Contents

Unit I	**Introduction**	**03 Hours**

Concept of Industrial Engineering, definition, development, various techniques of Industrial Engineering, Scope in Textiles

Unit II	**Work Study**	**12 Hours**

A) Work Study and Productivity- Production – Definition, Types of production, and characteristics of each type production. Definition, ways to increase productivity, measurement of productivity.

B) Method Study-Definition, steps in method study, details of every step, charts used for recording, outline chart, flow process chart & its types, two handed process chart, multiple activity chart, principles of motion economy, Micromotion Study – Contribution of Gilbreth, Therblings, Procedure, SIMO Chart.

C) Work measurement : Definition, Techniques, concept of total time, standard time, allowances, problems

Unit III	**Operation Research**	**06 Hours**

Operation Research : Definition, various techniques of OR. Basics of linear programming – Formulation of LPP by Graphical solution.

A) Project Planning- Network Analysis – PERT, CPM, and comparison.

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Unit IV	Production, Planning & Control (PPC	07 Hours

A) Production, Planning & Control (PPC)- objectives, functions.
B) Forecasting- various techniques of sales forecasting,
C) Scheduling-sequencing, scheduling, Gantt charts
D) Plant Location and Plant Layout

Unit V	Value analysis and Value engineering	04 Hours

Value analysis and Value engineering- Value, concept of value analysis, concept of value engineering, Reasons of unnecessary cost, value analysis procedure**.**

Unit VI	Job evaluation and merit rating	04 Hours

Job evaluation and merit rating- Introduction, objectives, procedure of job evaluation, methods of job evaluation methods of merit rating

References Books:

1. Work Study – ILO
2. Work Study in Textiles – ILO
3. Elements of Production Planning & Control – Samual Eilon.
4. Industrial Engineering & Management – Banga Sharma.
5. Industrial Engineering & Management – O. P. Khanna.
6. Industrial Engineering Manual of Textile Industry – Nobert Lioyd Enrick.
7. Industrial & production engineering – Sanjay S. Patil, & Nandkumar Hukeri

DKTES Textile and Engineering Institute, Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – VI)
TFL352: STYLING AND FORECASTING

Teaching Scheme:	Credits	Evaluation Scheme:
Lectures: 03 Hrs/Week	03	SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks

Course Objectives:

- Explain fashion styling.
- Explain fashion forecasting.
- Demonstrate colour trend analysis.
- Explain sales forecasting.

Course Outcomes:

At the end of the course students will be able to

- Differentiate between fashion designing and fashion styling.
- Explain fashion forecasting.
- Analyse colour trends.
- Evaluate mega trends.

Course Contents

Unit I	Fashion Styling	06 Hours

Concept and scope of styling. Difference between fashion designing and fashion styling. Types of styling. Roles and responsibilities of fashion stylist. Skills required to become a successful stylist.

Unit II	Fashion Forecasting	06 Hours

Meaning of fashion forecasting, role and responsibilities of forecaster, steps in developing a forecast, fashion timetable and seasons, short term and long-term forecasting, avoiding forecasting traps.

Unit III	Colour Forecasting	06 Hours

Importance, language of colour – hue, saturation, and brightness, consumers and psychology of colour, seasonal colour analysis, colour cycles, fashion colour names. Colour Relationships across Product Categories. Sources of colour ideas. NCD technique of colour trend analysis.

Unit IV	Textile & Style Forecasting	06 Hours

Fashion in fibres and fabrics, sources of innovation in textile development, timing of innovation, innovation in fibres, yarns fabrics, dyes, finishes, and trims, fabric fairs and trade shows. Silhouette trends. Style forecasting: trend multiplication, different designers with same concept. New uses of same products.

Unit V	Sales Forecasting	06 Hours
Importance of sales forecasting, time series technique, correlation regression techniques, qualitative techniques, blending quantitative and qualitative techniques. Sales forecasting in context of product life cycle.		
Unit VI	**Mega Trend Analysis**	**06 Hours**
Projections made by various trend forecasting agencies like Pantone, WGSN, Colour marketing, Design seeds, etc. Decade-wise analysis of trends in colour, fabric, style, silhouette, etc. based on various factors like political, economic, environmental, social, etc.		

References Books:

1. Fashion Forecasting by Kathryn McKelvey and Janine Munslow (2008), Wiley-Blackwell. ISBN: 9781405140041.
2. Fashion Forecasting by Evelyn L. Brannon (2010), Fairchild Publications. ISBN: 1563678209.
3. Fashion And Trends Forecasting by
4. Color Forecasting For Fashion by Kate Scully and Debra Johnston Cobb (2012), Laurence King Publishing. ISBN: 9781856698207.
5. Fashion Forward: A Guide To Fashion Forecasting by Chelsea Rousso (2012), Fairchild Books. ISBN: 9781563679247.
6. Fashion Trends: Analysis And Forecasting by Eundeok Kim, Ann Marie Fiore and Hyejeong Kim (2011), Berg Publishers. ISBN: 9781847882936.
7. The Trend Forecaster's Handbook by Martin Raymond (2010), Laurence King. ISBN: 9781856697026.
8. Sustainable Fashion And Textiles Design Journeys by Kate Fletcher (2008), Routledge Publishers. ISBN: 1844074811.
9. The Art of Manipulating Fabrics by Colette Wolff (1996), KP Books. ISBN: 0801984963.
10. Beyond Design: The Synergy of Apparel Product Development by Sandra J. Keiser and Myrna B. Garner (2012), Bloomsbury Publishing India Private Limited. ISBN: 1609012267.

DKTES Textile and Engineering Institute, Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – VI)
TFL353: CAD – CAM FOR APPARELS

Teaching Scheme: Lectures: 03 Hrs/Week	Credits 03	Evaluation Scheme: SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks

Course Objectives:

- To define the concepts of CAD-CAM and its usage in garment manufacturing.
- To understand the computerized pattern making process.
- To explain the computerized production planning and 3D technology in garment manufacturing.
- To explain the latest developments of CAD-CAM in apparel industry.

Course Outcomes:

At the end of the course students have understood

- Illustrate the concepts of CAD-CAM and its usage in garment manufacturing.
- Discuss the computerized pattern making process.
- Describe the computerized production planning and 3D Technology in garment manufacturing.
- Interpret the latest developments of CAD-CAM in apparel industry.

Course Contents

Unit I	Introduction to CAD/CAM	05 Hours

Introduction to computer operations. Concepts of CAD / CAM. Abbreviations and symbols used in CAD systems. Advantages and application of CAD/CAM in Garment Manufacturing.

Unit II	Computerized production pattern making	08 Hours

Manual vs CAD systems. Computerized production pattern making – Hardware and software selection for CAD systems. Computer aided manipulation of pattern pieces to create individual styles. Concept of Grading, digitizing and plotting. Input and output reports for CAD

Unit III	Computer graphics	05 Hours

Principles of computer graphics, **Types and application.** Image Processing and Manipulation - Resolution factor of image, study of pixels and its uses, importance of colours in computer graphics – colour models.

Unit IV	3-D Modelling: Intelligent systems	08 Hours

3D scanning technology. 3D body scanners, Imaging techniques for various designs. Automatic Pattern
Generation Systems. 2D to 3D conversion technology. Draping 2D patterns on 3D body forms. Digitizing a pattern and grading of patterns. Drape evaluation of 3D garment simulation. 3D virtual clothing and simulation software.

Unit V	Management Information System in garments industry	08 Hours

MRP and MRP – II. EDI and RFID in garment technology. Concept of Enterprise Resource Planning (ERP). History and evolution of ERP. Benefits and different modules of ERP. Future of ERP.OCR report and its use. Inventory Management. Study of ERP Software like Fast react and

Stage and their modules. Lead time reduction with software.		
Unit VI	**Computer Aided Manufacturing**	**05 Hours**
Concept of CAM - Function and features. Computer controlled machinery for garment manufacturing. Algorithm for computer production garment parts. Development of robotics for CAM. Creating marker plan and plotting markers. WIP control using CAD software, Reports generated by production planning software.		

References Books:

1. Winfred Aidrich, “CAD in Clothing and Textiles”, Blackwell Science Ltd., 1994.
2. Patric Taylor, “Computer in the Fashion Technology”, Om Book Service, 1997.
3. Stephen Gray “CAD / CAM in clothing and Textiles ", Gower Publishing Limited,1998, ISBN 0-566-07673X.
4. Compilation of papers presented at the Annual world conference Sep 26 -29, 1984 Hongkong, “Computers in the world of textiles ", The textile Institute ISBN: 0-0900739-69X.
5. Winifred. Aldrich, " CAD in clothing and Textiles ", Blackwell Science 2nd edition, 1992, ISBN: 0-63 -3893 – 4
6. Jacob Solinger, “Apparel Manufacturing Handbooks ", Van no strand and Reinhold Company, 1980,ISBN:0-442-21904-0.

DKTES Textile and Engineering Institute, Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – VI)
TFL354: APPAREL MERCHANDISING

Teaching Scheme:	Credits	Evaluation Scheme:
Lectures: 03 Hrs/Week	03	SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks

Course Objectives:

- To understand various departments and product development process in apparel industry.
- To explain basics of marketing
- To explain merchandising process in apparel industry.
- To understand types of sourcing and export documentation.

Course Outcomes:

At the end of the course students have understood

- Understand various departments and product development process in apparel industry.
- Explain basics of marketing
- Explain merchandising process in apparel industry.
- Understand types of sourcing and export documentation.

Course Contents

Unit I	The Garment Manufacturing Process	05 Hours

Introduction to apparel industry - organization structure of the apparel industry Business, Apparel supply chain. Apparel production process flow, order booking, pre-production and production activities. Various departments of apparel industry and its function.

Unit II	Product development	06 Hours

Different types of samples, sample approval procedure, sample review, pilot run, merchandiser's role in product development, pre-production activities and its importance purchase order, Bill of material, pricing terminologies (FOB, CIF, CMT)

Unit III	Marketing	08 Hours

Marketing definitions, key concepts of marketing, Marketing evolution, Marketing Process, Marketing Mix, Selling vs Marketing, Marketing environment, marketing research, marketing objectives and Strategies, Market segmentation, traditional and modern ways of promotion.

Unit IV	Merchandising	08 Hours

Introduction to fashion merchandising and its process, merchandising terminologies, roles and responsibilities of merchandiser, skills required for good merchandiser, types of merchandisers, buying cycles and tools of merchandising, time and action plan, range planning, critical path, Costing process. KPI for merchandising department.

Unit V	Sourcing	06 Hours

Need for sourcing, Resource Planning – Global Sourcing Strategies, Supply Chain and demand chain analysis, Supply chain management and its importance. JIT technology. Buying house –Its function and role in garment industry.

Unit VI	Export Documentation	06 Hours
Various types of export documents, Pre-shipment Post -shipment documentation, Terms of sale, payment, shipment etc. Export incentives: Duty drawback, DEPB, I / E license - exchange control regulation –(FEMA) foreign exchange management acts - export management risk - export finance.		

References Books:

1. Marketing Management by Philip Kotler. 15th edition Pearson Education. ISBN: 978-9332557185
2. Cooklin's Garment Technology for Fashion Designers, 2nd Edition by Gerry Cooklin, Steven Hayes, John McLoughlin, Dorothy Fairclough, Blackwell Publications, ISBN: 978-1-4051-9974-2
3. Garment Manufacturing: Processes, Practices and Technology by Prasanta Sarkar, Online Clothing Study. ISBN: 978-9383701759
4. Fashion Buying by Elaine Stone. McGraw-Hill In publication ISBN: 978- 0070617469
5. Apparel Merchandising by kumar . Abhishek Publications, ISBN: 978-8182473010
6. Fashion Marketing by Mike Easey . john Wiley & Sons publication. ISBN: 978- 0632034598

DKTES Textile and Engineering Institute, Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – VI)
TFL355: GARMENT ORNAMENTATION

Teaching Scheme: Lectures: 03 Hrs/Week	Credits 03	Evaluation Scheme: SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks

Course Objectives:

- To describe the history, tools and types of hand embroidery stitches.
- To explain the different Indian traditional embroideries and ornamentation techniques.
- To study the embroidery machine and latest development in it.
- To develop the motifs with the software used for the embroidery.

Course Outcomes:

At the end of the course students have understood

- Illustrate the history, tools and stitches used for the hand embroidery.
- Discuss the different Indian traditional embroideries and understand ornamentation techniques.
- Study the embroidery machine and describe the latest developments
- Design the motifs for embroidery by using the embroidery software

Course Contents

Unit I	Introduction	10 Hours

Definition, History of Embroidery, general rules for hand embroidery, Design transfer techniques, Tools for hand embroidery, Selection of needle, threads, fabrics and colors for embroidery.

Unit II	Indian traditional embroidery	06 Hours

Phulkari embroidery, Kasuti embroidery, kantha embroidery, Banjara embroidery, tribal embroideries-stitches, designs, colors and materials used., running, couching, button hole, satin, long and short, wheat, chain, stem, herringbone, cross stitch, knotted stitches, fish bone etc.

Unit III	Ornamentation Techniques	08 Hours

Eyelet work, cutwork, Richelieu work, lace work, drawn thread and fabric work, patch work, mirror work, appliqué, shaded embroidery, shadow work, badala work, bead and sequins work, bobbin thread embroidery etc.

Unit IV	Introduction to Machine Embroidery	07 Hours

History of embroidery machine, Advantages of embroidery machines, Various types of needles, frames, bobbins, Selection of frames to design, Selection of needle thread and bobbin thread and suitable stitches for embroidery using computer.

Unit V	Construction and Working of Embroidery machines	07 Hours

Passage of thread, operation screen, tension switch, needle bar, bar switch, thread breakage indicator, colour change motor, driver box, x-axis and y-axis pulse motor, Timing and setting of embroidery machine. Different types of embroidery machines, Costing, Quality and Care of embroidery goods, latest developments and technical features of embroidery machines, Care, maintenance and precaution of embroidery machine.

Unit VI	Software used for embroideries	06 Hours

Introduction to various types of embroidery software, process of digitizing, punching tools, different input methods for embroidery software, Editing and Modifying designs, troubleshooting and corrective actions. Limitations of embroidery software.

References Books:

1. 1. Shailaja D.Naik,“Traditional Embroideries of India”,A.P.H Publishing Corporation, New Delhi, 1996.
2. Sheila Paine, “Embroidered textiles”, Thames and Hudson Ltd., 1990.
3. Gail Lawther, “Inspirational Ideas for Embroidery on clothes andAccessories”, Search Press Ltd., 1993.
4. Shailaja D. Naik, “Traditional Embroideries of India”, A.P.H PublishingCorporation, New Delhi, 1996.
5. Handbook of machine embroidery by unity overseas ltd.

DKTES Textile and Engineering Institute, Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – VI)
TFLOE1- MBLOE1: COSTING (OPEN ELECTIVE)

Teaching Scheme: Lectures: 03 Hrs/Week	Credits 03	Evaluation Scheme: SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks

Course Objectives:

- To understand concept of cost accounting and Cost Audit.
- To understand Accounting for Martial and Labour.
- To understand accounting for Overhead & Preparation of cost sheet.
- To understand Job costing, Contract costing, Process costing and Batch costing.

Course Outcomes:

At the end of the course students have understood

- Describe concept of cost accounting & Cost Auditing.
- Analyze various Material and Labour cost.
- Analyze overheads & Prepare Cost Sheet.
- Explain Job costing, Contract costing, Batch costing & Process costing.

Course Contents

Unit I	**Introduction to Cost Accounting**	**06 Hours**

Meaning & Definition of Cost, Classification & Elements of Cost, Nature, scope, objectives, functions & benefits of costing. Difference between Cost Accounting & Financial Accounting

Unit II	**Accounting for Materials**	**06 Hours**

Meaning, objective, Material Cost Control & its Importance, techniques of inventory control, Material Stock Levels and calculation of stock levels ((Maximum, Minimum, Re-order, Average and Danger Level)

Unit III	**Accounting for Labour**	**08 Hours**

Meaning, Need for Overhead Cost Control, Classification for labour cost. Labour turnover- meaning, causes & control. Overtime, Idle time – Causes & Remedy. Principles & methods of remuneration and incentive schemes

Unit IV	**Accounting for Overhead**	**06 Hours**

Meaning, classification, apportionment and allocation of overheads. Machine hour rate- meaning, bases, Advantages, disadvantages

Unit V	**Unit & Output Costing**	**07 Hours**

Meaning of Cost Sheet, Elements of Cost under unit or output costing Format of Cost Sheet, Preparation of cost sheet. Cost Audit –Meaning, Importance and Techniques of Cost Audit

Unit VI	**Methods of Costing**	**08 Hours**

Job Costing- Meaning, Procedure & application Contact Costing- Meaning, Procedure, & application Difference between job and contract Costing. Batch Costing- Meaning, procedure, & application Process Costing- Meaning & application, Normal and Abnormal losses, joint and byproducts

References Books:

1. Jawahar Lal, Seema Shrivastava- “Cost Accounting” Mc Graw Hill Education; 4 edition (25 September 2008)
2. S.P. Jain- “Advanced Cost Accounting: Cost Management”-Kalyani Publishers
3. M N Arora, “Cost Accounting –Principles and Practices”, Vikas Publishing House.
4. Jain S.C. and Narang K.L. “Advanced Cost Accounting”
5. Khan and Jain, “Management Accounting”, Tata McGraw Hill Publishing, New Delhi 1993-3rd Edition
6. N.L and Ramanathan, “Management Accounting”, 5th edition, New Delhi, Sultan Chand, 1992. Horngreen Charles

DKTES Textile and Engineering Institute , Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – VI)
TFLOE1- CSLOE13: ERP AND E-COMMERCE (OPEN ELECTIVE)

Teaching Scheme: Lectures : 03 Hrs/Week	Credits 03	Evaluation Scheme: SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks

Course Objectives:

- Introduce students the basic concepts of ERP System and its implementation
- Introduce students the functionality of SAP-R/3.
- Elaborate various business models of E-commerce
- Illustrate e-commerce marketing, online retail strategies and social networks.

Course Outcomes:

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

- Explain the basic concepts of ERP System and its implementation
- Describe the functionality of SAP-R3.
- Elaborate various business models of E-commerce
- Illustrate e-commerce marketing, online retail strategies and social networks

Course Contents

Unit I	ERP Introduction	06 Hours

Overview, Accommodating Variety, Integrated Management Information, Supply Chain and Resource Management, Integrated Data Model, Scope, Technology and Benefits of ERP, Building an MIS, Business as a System, Core Process in a Manufacturing Company, Entities forming data Model in a Manufacturing Company

Unit II	ERP Implementation	07 Hours

Overview, Role of Consultants, Vendors and Users, Customization, Precautions, Post Implementation Option, ERP Implementation Methodology, Guidelines for ERP Implementation

Unit III	Getting Started with SAP R/3	06 Hours

Introducing SAP, SAP's Markets, SAP R/3 architecture, SAP Applications, SAP Modules

Unit IV	Introduction to E-Commerce	07 Hours

E-commerce: The Revolution is Just Beginning, A Brief History, E-commerce Business Models: Major Business to Consumer (B2C) Business Models, Major Business to Business (B2B) Business Models, Mobile E-commerce (M-Commerce), How E-commerce changes Business - Strategy, Structure and Process.

Unit V	E-Commerce Marketing and Online Retail	07 Hours

Consumer Online: The Internet Audience and Consumer Behavior, Basic Marketing Concepts, Internet Marketing Technologies, B2C and B2B E-commerce Marketing and Business Strategies, The online Retail Sector, Analyzing the Viability of Online Firms.
E-commerce in Action: E-Retailing Business Models, Common Themes in Online Retailing.
The Service Sector: Offline and Online, Online Financial Services, Online Travel Services, Online Career Services

Unit VI	Social Networks, Auctions and Portals	06 Hours

Social Networks and Online Communities, Social Network features, Online Auctions-Benefits and types of Auctions, E-commerce Portals.

References Books:

1. Enterprise Resource Planning Concepts and Practice – Vinay Kumar Garg, N. K. Venkitakrishnan, Second Edition, PHI Publication
2. E-Commerce: Business, Technology, Society - Kenneth C. Laudon, Thirteenth Edition, Pearson Publication
3. E-Commerce: An Indian perspective - S. J. Joseph, Fifth Edition, PHI Publication

DKTES Textile and Engineering Institute, Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – VI)
TFLOE1- UALOE1: INNOVATION IN TEXTILES (OPEN ELECTIVE)

Teaching Scheme: Lectures: 03 Hrs./Week	Credits 03	Evaluation Scheme: SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks

Course Objectives:

- To understand the fundamentals of innovation
- To describe the innovation process
- To understand the people, project, and program management tools and strategies
- To promote practical thinking and apply the learnings in innovation

Course Outcomes:

At the end of the course, students will be able to

5. Understand the fundamentals of innovation
6. Describe the innovation process
7. Understand the people, project, and program management tools and strategies
8. Think practically and apply the learnings in innovation

Course Contents

Unit I	Introduction to Innovation	07 Hours

a. Terms and Definitions.
b. Fundamental differences between Creativity, Invention, Discovery, and Innovation.
c. Importance of Innovation.
d. Types of Innovation.
e. Assignment 1: Searching examples of Invention, discovery & creativity.

Unit II	Type of Innovators, Innovation Metrics	07 Hours

a. Thinking Profiles
b. Discipline of Innovation.
c. Innovation Metrics: NPVI, IP, Market Share, Profit margins, Innovation pipeline etc.
d. Assignment 2: Textile specific examples

Unit III	Innovation Process – Part I	06 Hours

a. Identifying Unmet needs.
b. Ideation,
c. A Reverse-Innovation.
d. Technology Fusion and the New R&D
e. Assignment 3: Identification of real-life textile specific problem

Unit IV	Innovation Process – Part II	06 Hours

a. Business Case & Concept Development.
b. Quick prototyping/pilot techniques.
c. Idea Validation & Launch.
d. Assignment 4: Data collection for the most innovative textiles

Unit V	Managing Innovation	07 Hours

a. Stages of a project, types of projects and stage-gate process
b. Power tools: Charter, milestone plan, bowling chart, risk-countermeasure, budget plan.
c. Managing Open Innovation & Innovation Dilemmas
d. Assignment 6: Use of project management tools in textiles

Unit VI	Introduction to Intellectual Property	06 Hours

a. Difference between Patent, Trade secrets and Trademarks
b. Fundamentals of Intellectual Property
c. Patent search
d. Patent claims
e. Assignment 7: Patent write-up for textile specific innovation

References Books:

1. Clayton M. Christensen, Management of Innovation and Change, Harvard Business Review Press, 2013, ISBN: 9781422196021
2. Linda A. Hill, Greg Brandeau, Emily Truelove, Kent Lineback, Collective Genius: The Art and Practice of Leading Innovation, Harvard Business Review Press, 2014, ISBN: 9781422130025
3. Scott D. Anthony, The Little Black Book of Innovation: How It Works, How to Do It, Harvard Business Review Press, 2011, ISBN: 9781422171721
4. Vijay Govindarajan, The Three-Box Solution: A Strategy for Leading Innovation, Harvard Business Review Press, 2016, ISBN: 9781633690141
5. David Robertson, Kent Lineback, The Power of Little Ideas: A Low-Risk, High-Reward Approach to Innovation, Harvard Business Review Press, 2017, ISBN: 9781633691681
6. Clayton M. Christensen, Erik A. Roth, Scott D. Anthony, Seeing What's Next: Using Theories of Innovation to Predict Industry Change, Harvard Business Review Press, 2004, ISBN: 9781591391852
7. Govindarajan, Vijay, Reverse Innovation: Create Far from Home, Win Everywhere, Harvard Business Review Press, Year: 2012. ISBN: 9781422157640
8. Scott D. Anthony, Mark W. Johnson, Joseph V. Sinfield, Elizabeth J. Altman, The Innovator's Guide to Growth: Putting Disruptive Innovation to Work, Harvard Business Review Press, 2008. ISBN: 9781591398462
9. HBR's 10 Must Reads on Innovation (with featured article "The Discipline of Innovation," by Peter F. Drucker), Series: HBR's ten must reads on innovation, Harvard Business Review Press, Year: 2013. ISBN: 9781422189856,
10. Mohamed Zairi (Eds.), Best Practice. Process Innovation Management, Butterworth-

Heinemann; 1999. ISBN: 9780750639538.
11. Karten B., Project management simplified: a step-by-step process, CRC Press; 2016. ISBN: 9781498729352.
12. Abidemi Badiru, Industrial Project Management: Concepts, Tools and Techniques. CRC Press; 2007. ISBN: 9780849387739.
13. Kim Chandler McDonald, Innovation: How innovators think, act and change our world, Kogan Page Limited. ISBN: 9780749469672.

DKTES Textile and Engineering Institute , Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – VI)
TFLOE1- IELOE1: PRODUCTION, PLANNING AND CONTROL (OPEN ELECTIVE)

Teaching Scheme: Lectures : 03 Hrs/Week	Credits 03	Evaluation Scheme: SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks

Course Objectives:

- To understand importance of production planning and control.
- To provide students with knowledge of production planning and different activities of its control.
- To explain the fundamentals of industrial planning, control, constrains and inventory.
- To introduce students to various applications of different techniques of production and planning control.

Course Outcomes:

At the end of the course students have understood

- Describe and discuss concepts of production and planning
- Able to calculate process capacity and planning.
- Select methods to control the production and inventory.
- Analyze the problems relegated to process planning and production control.

Course Contents

Unit I	Production Planning and Control	08 Hours

Introduction, Need for PPC, Scope of PPC, Activities carried out under PPC, Production Planning and Production Control, Objectives of PPC, Functions of PPC, Comparison between Production Planning and Production Control, Information Requirement of PPC , Production Procedure, Organization for PPC, Manufacturing Methods and PPC, Problems of Production Planning and Control, Company planning Importance of capacity planning, Long –chart form capacity planning, Concept of aggregate planning ,Optimization of size formula

Unit II	Process and capacity planning	06 Hours

Introduction, Framework for Process Engineering, Process and Equipment Selection, Application of Bea in the Choice of Machines or Process, Machine Requirements, Machine Output, Manpower Planning, Line Balancing, Process Planning

What is capacity planning, How it should be done, Central planning and factory planning, Materials follow up to ensure planning as per schedule, Planning review – Deviation v/s plan (Variance of analysis), Production planning tools (Technology) fast read etc.

Unit III	Production Control	07 Hours

Introduction, Outline of Production Control, Loading, Sequencing and Scheduling, Loading, Priority Sequencing, Sequencing Problems Assignment Model, Scheduling, Dispatching, Progressing,

Unit IV	Introduction of Just in Time (JIT) Manufacturing	05 Hours
Introduction, Seven Wastes, Basic Elements of JIT, Benefits of JIT,JIT Philosophy, Kanban System, Comparison between JIT and MRP, Implementation of JIT		
Unit V	**Theory of Constrains (TOC)**	**05 Hours**
Introduction, Synchronous Manufacturing, Performance Measurements, Bottlenecks and Unbalanced Capacity, Managing Bottlenecks, Components of Production Cycle Time, Goldrafts Theory of Constraints, Cost Accounting System for TQC, Comparison of TOC with JIT and MRP, VAT Classification of Firms		
Unit VI	**Inventory, Need of Inventory**	**05 Hours**
Benefit of Inventory, Models of Inventory, Periodic Inventory model, Maintaining inventory, ABC analysis of inventory. QR model		

References Books:

1. Industrial Engineering and production management by Martand Telsang- S Chand and Company Ltd.
2. Industrial Engineering and production operation management by Sanjay Patil and Nandkumar Hukkeri

DKTES Textile and Engineering Institute , Ichalkaranji
Third Year B. Tech. Man Made Textile Technology (Semester – VI)
TQMOE1: TEXTILE QUALITY MANAGEMENT (RSJ INSPECTION) (OPEN ELECTIVE)

Teaching Scheme:	Credits	Evaluation Scheme:
Lectures : 03 Hrs/Week	03	SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks

Course Objectives:

- To Explain Sampling standards, methods & Acceptable Quality Limits used to decide on conformity of shipment/ goods against specified requirements.
- To Explain Fabric, General & Container loading Inspection procedures.
- To Explain Product Safety / Regulatory requirements, Product Performance (Testing) requirements.

Course Outcomes:

On completion of course, students will be able to

- Apply the sampling standards methods & Acceptable Quality Limits to make decision on acceptance/ rejection of shipment/ goods.
- Execute/ Perform Fabric, General (Apparel/ Home Furnishing) & Container loading Inspections.
- Demonstrate the knowledge on requirement of Product Safety / Regulatory and Product Performance (Testing).

Course Contents

Unit I	Course Introduction and Ethics and Conduct Code, Code of Conduct	04 Hours

- Course Content & Evaluation System
- Professional conduct
- Awareness & Importance of Companies Ethics & Conduct Code and Code of Conduct.

Unit II	Fabric Inspection Procedure	08 Hours

- Sampling Methods & Allowable Points per roll & Total Inspection Quantity
- Sampling procedure, deciding on allowable points per roll & total inspection quantity
- Awareness on 4 points & 10 points system.
- Fabric inspection procedure following 4 points system.
- Defect size based assigning of points in 4 points system.
- Points per roll & total inspection quantity calculations.
- Other parameter checks like width, length, skew/ bow, EPI & PPI, GSM, etc...

Unit III	Product Safety / Regulatory requirements and Different Product Performance (Testing) requirements (Apparel & Home Furnishing)	08 Hours

- Information related to product safety standards/ regulatory requirements. Labelling requirements, etc.
- Different Apparel products example Wear, Women, Men wears, Fashion accessories, etc.
- Different home furnishing products example Bedding, Bath, Curtains, etc.
- General Size specifications & allowable tolerances, testing requirements, packing & packaging.

Unit IV	Sampling Methods, AQL Chart Reading & Understanding and Sampling Calculations	10 Hours

- Understanding different sampling methods/ standard like Single sampling, Double sampling and Multiple sampling.
- Different levels of sampling i.e. General Level I, II & III and Special Level S1, S2, S3 & S4.
- Chart reading for sampling & AQL.
- Application of AQL to make result decision.
- Examples of sampling calculations applying the different sampling methods/ standard.
- Examples of sampling calculations for complex lots.

Unit V	General Inspection Procedure – FRI	12 Hours

- Hours) General Inspection Procedure.
- Multiple different criteria's or sections of inspection
- How to perform these checks.
- About potential risks that are controlled or eliminated due to these checks and more.

Unit VI	Container Loading	06 Hours

- Procedure to follow for vacant container check. Supervision check & records to maintain during container loading.
- Sealing of loaded container.

References Books:

1. Testing and Quality Management, V. K. Kothari
2. Principles of Textile Testing, J. E. Booth
3. The Fundamentals of Quality Assurance in the Textile Industry, Stanley Bernard Brahams
4. Handbook of Textile Testing and Quality Control, Elliot B. Grover, D.S. Hamby
5. Statistics for Textile Engineers, J. R. Nagla
6. Statistics for Textile and Apparel Management, J. Hayavadana
7. Statistical Techniques, Design of Experiments and Stochastic Modeling, Anindya Ghosh, Bapi Saha Prithwiraj Mal
8. Fabric Inspection and Grading, Dan Powderly
9. Ready-to-wear apparel analysis, Patty Brown; Janett Rice

DKTES Textile and Engineering Institute, Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – VI)
TFP356: INDUSTRIAL ENGINEERING

Teaching Scheme: Tutorial: 01 Hr/Week	Credits 01	Evaluation Scheme: CIE: 50 Marks

List of Tutorials

1	Determination of standard time
2	Study of plant layout and location
3	Determination of objective function through LPP
4	Study of CPM
5	Study of PERT
6	Study of job evaluation and merit rating
7	Study of PPC

Submission – Minimum three tutorials from above list.

DKTES Textile and Engineering Institute, Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – VI)
TFD357: INTERNSHIP-I

Teaching Scheme:	Credits	Evaluation Scheme:
Training Period four weeks during Winter vacation	03	CIE: 50 Marks SEE: -- Marks Total: 50 Marks

Course Objectives:

- To expose the students to the industrial practice, environment its work culture and industrial practices.
- To expose the students to machineries, processes and modern tools used in industries.
- To develop understanding of techniques like Production Planning, Quality Assurance,
- Maintenance practices, Environment and Pollution Control, Management Information
- System.
- To provide hands-on training on machineries and equipments

Course Outcomes:

Students will be able to

- Understand the industrial, environment, work culture and industrial practices.
- Understand the machineries, processes and modern tools used in industries.
- Reproduce the techniques like Production Planning, Quality Assurance, Students will be able to maintenance practices, Environment and Pollution Control, Management Information System.
- Acquire skills and techniques to work in industries.

Course Contents

Unit I	Training in Spinning, Weaving, Knitting, Machinery Manufacturing, Yarn, Fabric, Garment Chemical Processing, Machinery Manufacturing, Erection and Commissioning, Garment Manufacturing, Synthetics Fibre and Yarn Manufacturing, Technical Textiles, Non-Wovens, R & D Lab, Marketing etc. for study of: Process Flow Chart, Visit to various departments and study of machineries, Important adjustments and settings, Speed of Important Parts, Modern Developments in machines/process, Chemicals, Dyes used for carrying out various process, Process parameters and effect on quality of product, Actual Production and Efficiency, Production Planning and Control, Maintenance Practices, maintenance tools and gauges, maintenance schedule, Study of lubrications, Process Control and Quality Control activities, Roles and responsibilities of various categories of workers/technical Staffs, Labour allocation.	
Unit II	**Special Studies**	
	Management information systems, Waste study, Costing, Production planning and control, Target achievement, Information regarding humidification plant, Utility, Electrical supply, Store, purchase, Marketing, Sales, Samples, Lay-out of Plant.	**07 Hours**
Unit III	**Project**	
	Objectives, Procedures, Observations, Analysis and conclusion of the project carried out.	

References Books:

Specific guideline points given in daily diary.

DKTES Textile and Engineering Institute, Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – VI)
TFP358: CAD-CAM FOR APPARELS LAB

Teaching Scheme: Practicals: 02 Hrs/Week	Credits 01	Evaluation Scheme: CIE: 50 Marks SEE: 50 Marks

List of Experiments

1	To understand the usage of the basic tools available for pattern making in any of the CAD software.
2	Draft the basic block using the tools available in the CAD software
3	Grade the basic block using grading tools available in CAD software
4	Measure and check the correctness of seams in the patterns
5	To add darts/pleats/notches/folds in the patterns
6	Create marker plan for a set of patterns drafted in CAD
7	To understand the usage of the tools available in fashion designing software
8	To drape a one-piece garment on the models available with the tools available in fashion designing software
9	To drape any party-wear garment on the models available with the tools available in fashion designing software
10	Digitize a manually drafted pattern with the help of digitizer and grade the digitized pattern for all sizes
11	Create a mixed marker plan for all the sizes drafted/graded and plot the pattern with the plotter
12	To make a textile print (sari border / bedsheet / curtain print) with the tools available in Wonder weaves Tex Print

Submission – Completed Journal.

DKTES Textile and Engineering Institute, Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – VI)
TFP359: GARMENT ORNAMENTATION LAB

Lab Scheme: Practicals: 02 Hrs/Week	Credits 01	Evaluation Scheme: CIE: 50 Marks SEE: 50 Marks

List of Experiments

1	Study of basic stitches and material required for hand embroidery.
2	Study of various surface ornamentation techniques.
3	Study of various fabric ornamentation techniques.
4	Study of historical background, motif, color and materials used in embroidery of kasuthi.
5	Study of historical background, motif, color and materials used in embroidery of kantha.
6	Study of historical background, motif, color and materials used in embroidery of phulkari.
7	Study of historical background, motif, color and materials used in embroidery of banjara.
8	Study of materials and tools used for machine embroidery.
9	Study of computerized embroidery machine.
10	Study of embroidery software.
11	Design development for computerized embroidery.
12	Embroidering of the developed design on the machine.

Submission – Completed Journal.

DKTES Textile and Engineering Institute, Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester – VI)
TFP360: DESIGN COLLECTION AND PRESENTATION LAB

Lab Scheme: Practicals: 02 Hrs/Week	Credits 01	Evaluation Scheme: CIE: 50 Marks

List of Experiments

1.	Previous decade study for colors, silhouettes, fabrics, and styles.
2.	To prepare forecasting sheet for colors, pattern and fabric for the ensuing seasons based on international forecast.
3.	To prepare research work sheet based on the selected theme.
4.	Preparation of mood board / story board.
5.	To prepare fabric swatch board for the selected theme.
6.	Illustrating fashion garments for various product categories.
7.	Design development process: Selection of Seams, Necklines, Collars, Sleeves, cuffs, pockets, Accessories etc.
8.	Development of flats.
9.	Development of garment specification sheets for the selected garment.
10.	Pattern development for a selected garment.
11.	To prepare client's brief sheet and cost sheet.
12.	Display of garment on live model.

Submission – Completed Journal.

DKTES Textile and Engineering Institute, Ichalkaranji
Third Year B. Tech. Fashion Technology (Semester-VI)
ATL302: PROFESSIONAL ETHICS

Teaching Scheme: Lectures: **02 Hrs./Week**		Evaluation Scheme: **CIE: 50 Marks**

Course Objectives:

- To create awareness on professional ethics and human values.
- To inculcate professionalism and imbibe ethical values.
- To apply ethical code and ethical theories in professional life.
- To understand business, environmental, computer and research ethics, IPR and CSR.

Course Outcomes:

At the end of the course, students will be able to

- Understand professional ethics and human values
- Explain professionalism and ethical values
- Apply ethical code and ethical theories in professional life.
- Understand business, environmental, computer and research ethics, IPR and CSR.

Course Contents

Unit I	**Basic Concepts**	**06 Hours**

Introduction, Basic Terminologies, Morals, values and Ethics, Integrity, Work ethic, Service learning, Respect for others, living peacefully, Caring, Sharing, Honesty, Courage, Valuing time, Cooperation, Commitment, Empathy, Self-confidence, Character.

Unit II	**Profession and Professionalism**	**07 Hours**

Senses of 'Engineering Ethics,' Variety of moral issues, Types of inquiry, Moral dilemmas, Moral Autonomy, Kohlberg's theory, Gilligan's theory, Consensus and Controversy, Professions and Professionalism, Professional Ideals and Virtues, Uses of Ethical Theories, CSR.

Unit III	**Engineering and Ethics**	**06 Hours**

Engineering as Experimentation, Engineers as responsible Experimenters, Research Ethics, Codes of Ethics, Industrial Standards - A Balanced Outlook on Law, The Challenger Case Study

Unit IV	**Risk Assessment**	**06 Hours**

Safety and Risk, Assessment of Safety and Risk, Risk Benefit, Analysis, Reducing Risk, The Government Regulator's, Approach to Risk and Case Studies.

Unit V	Ethical Rights	07 Hours

Collegiality and Loyalty, Respect for Authority, Collective Bargaining, Confidentiality, Conflicts of Interest, Occupational Crime, Professional Rights, Employee Rights, Intellectual Property Rights (IPR), Discrimination.

Unit VI	Ethics and Profession	07 Hours

Multinational Corporations, Business Ethics – Environmental Ethics, Computer Ethics - Role in Technological Development, Weapons Development, Engineers as Managers, Consulting Engineers, Engineers as Expert Witnesses and Advisors, Honesty, Moral Leadership, Sample Code of Conduct.

References Books:

1. Mike W. Martin, Roland Schinzinger, Ethics in Engineering, 4th Edition, McGraw-Hill, New York, 2017. ISBN: 9780071112932.
2. Elaine Englehardt, Ray James, Michael J. Rabins, Charles Harris Jr., Michael Pritchard, Engineering Ethics Concepts and Cases, 6th edition, Wadsworth Publishing Co Inc., 2018. ISBN: 978-1337554503.
3. Jayasree Suresh and B. S. Raghavan, Human Values and Professional Ethics, 4th Edition, S. Chand Publications, 2003. ISBN: 978-8121924528
4. R. Subramanian, Professional Ethics, 2nd Edition, Oxford University Press, 2017. ISBN: 978-0199475070.
5. R. S. Naagarazan, A Textbook on Professional Ethics and Human Values, 1st edition, New Age International Private Limited, 2020. ISBN: 9389802431.
6. Govindarajan M., Engineering Ethics, Prentice Hall India Learning Private Limited, 2004. ISBN: 9788120325784.
7. P.S. Bajaj, Raj Agrawal, Business Ethics: An Indian Perspective, 1st edition, Dreamtech Press, 2004. ISBN: 9788177221671.