



சர்தார் வல்லபாய் பட்டேல் சர்வதேச ஜவுளி மற்றும் மேலாண்மை கல்லூரி
सरदार वल्लभभाई पटेल इंटरनेशनल स्कूल ऑफ टेक्स्टाइल्स एंड मैनेजमेंट
SARDAR VALLABHBHAI PATEL
International School of Textiles & Management
Autonomous Institute, Ministry of Textiles, Government of India.
Approved by AICTE, NAAC Accredited
#1483, Avanashi Road, Peelamedu, Coimbatore-641004, Tamil Nadu
Landline : 0422-2571675, 2592205 Web: www.svpistm.ac.in

B.Sc. – TEXTILES & FASHION/ Hons. /Hons. With Research
REGULATIONS, CURRICULUM & SYLLABUS 2026
(Four Years)

Sl.No	Particulars	Page No.
1.	About SVPISTM	01
2.	Vision and Mission	02
3.	I. Governance Policies 1. Students Behaviour in the Campus	03
4.	2. Dress Code a. Formal dress code policy – Wednesdays b. Dress code Guidelines for Wednesdays	04
5.	3. Library a. Library timings b. Rules and regulations c. Lending rules	05
6.	4. Computer Lab a. I.T. Guidelines i. The institute and its IT resources ii. Dos and don'ts for using the resources iii. Storage, email/ chat: Privacy, responsibilities and rules iv. Website contents b. Abuse and Action for Abuse of Computing Privileges i. Abuse ii. Action	06
7.	5. Hostel Regulations a. Behaviour and discipline b. Upkeep of the hostel c. Entry and timings d. Visitors and guests e. Allotment and vacating of hostel accommodation f. Constitution of the hostel committee g. Rules and responsibilities of the hostel committee	09
8.	6. Attendance, Disciplinary & Grievance Committee	12
9.	7. Mentorship	13
10.	8. Malpractice in Examinations	13
11.	9. Institute Industry Interaction	14
12.	10. Placement Assistance Cell a. Rules and Regulation of Placement cell	15
13.	11. Class Committee	16
14.	12. Temporary Break of Study from the Programme	16
15.	13. Performance Analysis Committee	16
16.	14. Results Declaration Committee	16
17.	II. Regulations 1. Qualification For Admission	17
18.	2. Duration of the Programme	18

19.	3. Structure of the Programme	18
20.	4. Types of Courses	19
21.	5. Assessment of Theory Courses	21
22.	6. Assessment of Practical Courses	23
23.	7. Evaluation of Internship, Project Work and Dissertation	23
	a. Internship	24
	b. Project work	25
	c. Mini Project	
	d. Dissertation	
24.	8. Eligibility Criteria for Appearing in Examinations and Attendance Requirement	26
25.	9. End Semester Examination	26
26.	10. Movement to Higher Semester	28
27.	11. Performance Analysis System	29
28.	12. Grade Sheet	30
29.	13. Eligibility To Award Of Degree	30
30.	14. Consolidated Statement of Grades	30
31.	15. Revaluation of Answer Scripts	31
32.	16. Supplementary Examinations	31
33.	17. Withdrawal From Examination	31
34.	III. Curriculum and Syllabus	32
	1. Mission Objectives (MOs)	
35.	2. Programme Educational Objectives (PEOs)	32
36.	3. Programme Outcomes (POs)	33
37.	4. Mapping of MOs and PEOs	33
38.	5. Mapping of PEOs and POs	33
39.	6. Graduate Attributes	33
40.	7. Subject Curriculum	35
41.	8. List of Electives	39
42.	9. List of Value Added Courses	39
43.	10. Credit Framework	41
43.	11. Syllabus	42

ABOUT SVPISTM

SVPISTM is a one of its kind institute which is primarily devoted for Textile Management excellence. To cater to the needs of students' community it offers UG and PG programmes in Textiles and Management. With more than 15 years of heritage, SVPISTM has carved a niche in the field of Textile and Management education. Our methodology for producing industry ready candidates and entrepreneurs is based on experiential learning through practical workshops, real-time projects, working alongside with industry professionals as mentors.

This Institute is an autonomous entity governed by the Ministry of Textiles, Government of India. All the academic programmes are offered in collaboration with the Central University of Tamil Nadu (CUTN). The core culture and philosophy of SVPISTM is to keep students at the forefront of modern textile and management practices through innovative pedagogy blending theoretical knowledge with practical application to succeed in the global business world.

In the rapidly changing economic and business landscape, need for managers with the global perspective and personal competencies to drive diverse teams has become even more important for organizations. We continually strive on best approach to empower the students to harness their potential strengths and to emerge as positive, well-informed, ethical and confident individuals.

Right from inception we have been training executives, preparing the participants for a world in constant evolution, a world that needs leaders capable of utilizing innovation to turn challenges into opportunities. At SVPISTM, innovation is the way of life.

VISION AND MISSION OF THE INSTITUTE

Vision

To emerge as an internationally renowned center of excellence in textile education, creating a strong cadre of professionals who will become inspiring performers and decision makers, capable of attaining high standards and competitive edge to bring the Indian textile industry to the forefront.

Mission

Our Mission is to impart vibrant, comprehensive and innovative learning to our students enabling them to be managers, entrepreneurs, and leaders with strong cultural values and to provide an ambience to develop their skills to meet the challenges of the global business environment.

I. GOVERNANCE POLICIES

1. STUDENT BEHAVIOUR IN THE CAMPUS

- a. Discipline includes the observance of good conduct and orderly behavior by the students of the Institute.
- b. The following and such other rules as framed by the Institute from time to time shall be strictly observed by the students of the Institute.
 - ✓ Every student of the Institute shall maintain discipline and consider it his /her duty to behave decently at all places. Men student shall, in particular, show due courtesy and regard to women students.
 - ✓ No student shall visit places or areas declared by the Institute as “Out of Bounds” for the students.
 - ✓ Every student shall always carry on his / her personal Identity Card issued by the Institute.
 - ✓ Every student, who has been issued the Identity Card, shall have to produce or surrender the Identity Card, as and when required by the Institute Staff, Teaching and Library Staff and the Officials of the Institute.
 - ✓ Any Student found guilty of impersonation or of giving a false name shall be liable to meet disciplinary action.
 - ✓ The loss of the Identity Card, whenever it occurs, shall immediately be reported in writing to the class advisor.
 - ✓ If a student is found to be continuously absent from classes without information for a period of 15 days in one or more classes, his / her name shall be struck off the rolls. He/she may, however, be readmitted within the next fortnight on payment of the prescribed readmission fee etc. He / She will not be readmitted beyond the prescribed period.
- c. Breach of discipline, interlaid, shall include:
 - ✓ Irregularity in attendance, persistent idleness or negligence or indifference towards the work assigned.
 - ✓ Causing disturbance to a Class or the Office or the Library, the auditorium and the play Ground etc.
 - ✓ Disobeying the instructions of teachers or the authorities;
 - ✓ Misconduct or misbehavior of any nature at the Examination Centre.
 - ✓ Misconduct or misbehavior of any nature towards a teacher or any employee of the Institute or any visitor to the Institute.
 - ✓ Causing damage, spoiling or disfiguring to the property/equipment of the Institute;
 - ✓ Inciting others to do any of the aforesaid acts;
 - ✓ Giving publicity to misleading accounts or rumor amongst the students;
 - ✓ Mischief, misbehavior and/or nuisance committed by the residents of the hostels;

- ✓ Visiting places or areas declared by the Institute as out of bounds for the students.
 - ✓ Not carrying the identity cards issued by the Institute;
 - ✓ Refusing to produce or surrender the Identity Card as and when required by Teaching and other Staff of the Institute;
 - ✓ Any act of ragging.
 - ✓ Any other conduct anywhere which is considered to be unbecoming of a student.
 - ✓ Possession and/or use of any prohibited items and substances like tobacco, alcohol, narcotics, etc., is banned inside the campus premises
- d. Students found guilty of breach of discipline shall be liable to such punishment, as prescribed below:
- ✓ Fine
 - ✓ Campus Ban
 - ✓ Expulsion
 - ✓ Rustication
- e. No such punishment shall be imposed on an erring student unless he is given a fair chance to defend himself. This shall not preclude the Director from suspending an erring student during the pendency of disciplinary proceedings against him relating to discipline & disciplinary action in relation to the student shall vest in the Director. However the Director may delegate all or any of his / her powers as he deems proper to the program coordinator or to the disciplinary authority as the case may be any functionary of the Institute.
- f. The said Committee, shall, make such Rules as it deems fit for the performance of its functions and these Rules and any other orders under them shall be binding on all the students of the Institute.
- g. The decision of the Discipline Committee shall be final and binding. However, in exceptional circumstances the Discipline Committee is empowered to review its decisions.

2. DRESS CODE

Male students shall wear formal dress of pants and tucked-in shirts with shoes. The female students shall wear Salwar Kameez or any modest and professional attire. All students are expected to come in formal dress on important occasions. On any occasion students will not be allowed to attend the classes in T-shirts.

a. Formal Dress Code Policy – Wednesdays

To maintain a professional and disciplined learning environment, all students are required to adhere to a formal dress code every Wednesday. This initiative reinforces the importance of decorum, uniformity, and readiness for professional settings.

b. Dress Code Guidelines for Wednesdays:

Boys: Formal shirt (tucked in), formal trousers, belt, and shoes. Clean shave or well-groomed beard is expected.

Girls: Formal salwar kameez, or any modest and professional attire appropriate to the academic environment

3. LIBRARY

The library is stacked with latest books and reference materials. The library has been provided with the ERP Software having a multi-functional facility. The library holds over 8,000 volumes of books and rich collection of journals. In addition the library possesses audio- visual and multimedia documents. Apart from this, it also provides online sources and reprographic facilities. The library subscribes to online data bases to enhance the knowledge base of students. The time, rules and regulations of library are given below.

a. Library Timings

- ✓ Monday to Friday – 10.00 am to 5.30 pm
- ✓ Saturday (Excluding second & last Saturday of month) – 10.00 am to 4.30 pm

b. Rules and Regulations

- ✓ Students should register their entry and exit to access the Library.
- ✓ Books, bags, and other belongings are not allowed inside the Library.
- ✓ Students are allowed to take maximum of three books for a period of fourteen days. They may be allowed for further renewal if there is no demand for that particular book. If the books are not returned within the due date, Rupee one will be charged per day per book till the return of the books.
- ✓ Reservation facility is available on issued books.
- ✓ Books will be issued upto 5.30 pm on all the working days except Saturdays.
- ✓ ID card should be produced at the time of issuing books.
- ✓ Issue of books through the ID card of other students is strictly prohibited.
- ✓ Loss of book is to be replaced by the same copy or by double the cost of the book.
- ✓ Silence to be maintained inside the library. Group activity to be avoided inside library.
- ✓ Stealing, damaging the property of the library, misbehaviour with any-one in the library will be considered an act of indiscipline and misconduct. The student involved may be denied library membership and reported for further action on account of their misconduct.
- ✓ Any book issued must be shown for verification to the person on duty at the library gate.
- ✓ Marking, defacing or damaging any library property is a gross misconduct.

c. Lending Rules

- ✓ Reference book, journals or magazines, summer training reports or dissertation reports (including back issues) will not be issued to students. They are to be used only in the

Library.

- ✓ The Librarian reserves the right to recall any book issued to the borrower even prior to the due date of return, if necessary.
- ✓ Maximum of three books will be issued to the students for the period of fourteen days.
- ✓ Maximum of five books will be issued to the faculty members for the period of sixty days.
- ✓ If a student fails to return the book on due date or fails to get it re-issued on the due date, a fine of Rupee One per day per book will be charged for each book after the due date.

4. COMPUTER LAB

The institute campus is equipped with networked computers and other IT equipment. Internet browsing with broadband facility is available other than class hours during college working time. Facilities like printing & scanning are also extended to students.

a. IT Guidelines

i. The Institute and its IT resources

The Institute makes Information Technology services available to the students in varied forms:

- ✓ The Institute network comprises of secured network with the latest Hardware, Firewall & Antivirus software.
- ✓ The Institute network comprises DNS Server, ERP Server, and Online e-Learning software with the latest Processor with desktop computers setup.
- ✓ The Institute has centralized computing facility. Audio visual equipment is available in the classroom and in the seminar hall.
- ✓ Access to High-speed internet is available in all the computers except the computers in the class rooms. In addition to this National Knowledge Network Connectivity from BSNL is also available for students.
- ✓ Reprographic facility is made available inside the campus for the students as well as for the faculty members.
- ✓ Scanning facility is available in the Computer Laboratory, Library, Controller's office (Multi-function Device) and Academic section.
 - ✓ The computers assigned to the group / department may be utilized effectively by the group on time-share basis.
 - ✓ The Faculty, Staff and students are provided with individual user-IDs in the Institution domain server through which they can interact among themselves. Moreover, we have separate individual email-IDs to our faculty and staff for official purpose through the web mail.
 - ✓ The group or individual or department are being assigned with the computers or workstations, which means that the individual / department are responsible for the machine's safety. However the IT department may provide suggestions to keep it safe and in working condition.

- ✓ In case of any requirement, the group / department should provide information about the usage of the computing equipment.
- ✓ The Institute owns Software licenses for various System Software as well as Application software.
- ✓ The Secured Wi-Fi Connectivity is available in the campus as well as in the hostels.

ii. DOs and DON'Ts for using the resources

- ✓ Students must wear a valid ID card before entering the Computer Lab
- ✓ While entering the computer laboratory, students must make an entry in the register book kept in the computer laboratory and also at the time of exit from the lab. Students are expected to maintain perfect silence and good discipline.
- ✓ Students are not allowed to bring in bags, pouches, food and beverages inside the Lab
- ✓ Mobile phone should be in switched off mode.
- ✓ Before leaving lab, students must shutdown the system, keep the place clean and rearrange the chairs in appropriate place.
- ✓ During the class hours students are not allowed to use the computer lab. If necessary, they can get permission from the concerned class faculty, Program coordinator and Lab in charge. They should submit the lab access form to the lab in charge, unless they will not be allowed to enter into the lab.
- ✓ You can back up your data regularly in the additional drives available in the local machine itself.
- ✓ Use of any media (CD / DVD / Pen Drive) or transfer of files from digital camera or any storage media to the network storage is subject to permission from the network administrator. Usage of pen drive is allowed only after scanning for virus.
- ✓ No user is allowed to login a computer as administrator. He / She is only an ordinary user with assigned individual / group user – id.
- ✓ Inform and seek permission from the IT department (recommended procedure) while transferring / shifting devices (such as desktop computers, laptops) from one place to other inside the campus for any task.
- ✓ In case of any requirement in taking laptops / projectors or any devices outside the campus, acquire a gate pass from the administrative office.
- ✓ Do not try getting data of others from the computer or the network.
- ✓ Taking a photograph using any media in the laboratory is prohibited.
- ✓ Do not login with the login-id of others or do not lend your login id and password to others. Any data loss thereby may not be retrieved.
- ✓ The students have to send a request to the library for any hard copy print by listing the file, location and page numbers of the content for print and collect only during the break hours. Users have to enter in the log book and collect the print out. This procedure applies to copying / writing data in CDs also.

- ✓ Students can use their personal computers in the campus. But they are not permitted to connect to the LAN. Use of software without license in the laptop and accessing the internet through institute network is strictly prohibited. Software piracy will not be entertained.
- ✓ Students are advised to maintain cleanliness inside the laboratory. Use of mobile phones, hearing songs and eatables are not allowed inside the laboratory (to be strictly followed by all the students in the computer laboratory, failing which the services will be denied.)

iii. Storage, e-mail / Chat: Privacy, Responsibilities and Rules

- ✓ IT department has provided every user with a storage space in the network. As network share is available to students of that course, it is a common information sharing only and not to store individual / group's personalized data or irrelevant data like movies, songs etc.
- ✓ SVPISTM procedures allow IT system administrators to view and monitor any files, including e-mail messages, in the course of diagnosing or resolving system related problems and maintaining information integrity. System administrators, as part of the job, will treat any such information on the systems as confidential. However, if the administrator comes across information that indicates illegal activity / content stored in the storage area, the content will be deleted without any notice and the user's work area will be barred.
- ✓ SVPISTM's IT policy prohibits certain other kinds of usages. For example, using computers and the network used by individuals for commercial and individual purposes. Such cases if found will be brought to the attention of higher officials.
- ✓ Use of Messenger / Chat is prohibited inside the campus.
- ✓ Gaming is strictly prohibited. The web sites providing online gaming are not advised to be browsed. Any such activity if reported may block even the related beneficiary sites causing inconvenience to all other users in addition to denial of resources.

iv. Web Site Contents

- ✓ Individual users who are browsing will assume full responsibility for the content in Web pages, and they must abide by all applicable rules and policies of SVPISTM.
- ✓ Information about the institute is available in the institute's official website viz. www.SVPITM.ac.in and www.SVPISTM.ac.in
- ✓ Any information to be uploaded in the website may be provided to the IT department with the approval from the Director's office.

b. Abuse and Action for Abuse of Computing Privileges

i. ABUSE

- Unauthorized use or misuse of IT department property or records includes
 - Electronic data mishandling.

- Willfully or negligently damaging or defacing records in common share or storage areas of individual courses.
- Theft or unauthorized removal of records, property or other person's property.
- Use of unrecognized / unauthorized storage media.
- Any other abuse as found / amended from time to time.
- Unfortunately computer abuse, malicious behaviour and unauthorized account access do happen. If they are found, it should be reported immediately.

ii. ACTION

- Denial of service of SVPISTM's computing and communications resources for violation of policy are set by the various disciplinary entities, then communicated to and carried out by IT. In instances of immediate threat to the computing and communication systems, IT takes direct and immediate action to safeguard the resources it is charged to protect.
- When IT department is notified that a user appears to be abusing computing resources, all of his or her computing privileges may be suspended immediately when such an action is warranted to protect the computing resources and to assure reliable service to the rest of the community.

5. HOSTEL REGULATIONS

a. Behaviour and Discipline

- ✓ A hostel campus should be a place where students can have the best possible conditions for studying and adequate rest. As such due consideration must be accorded to other residents. Noise level must be kept low to allow others the opportunity to study or sleep in comfort. Television, Radio etc. provided in the common room must be switched off after 10:00 pm. These rules are intended to ensure a conducive environment for all residents.
- ✓ Residents shall not create or permit their guests or visitors to create any disturbance or other nuisance in the hostel that will interfere with the well-being of others.
- ✓ Possession and/or use of any prohibited items and substances like tobacco, alcohol, narcotics, etc., is banned inside the campus premises.
- ✓ Smoking, chewing and spitting of pan in the hostel premises is strictly prohibited.
- ✓ Ragging in any form is prohibited. Punishments for ragging ranges from expulsion from hostel, debarring from exams to cancellation of admission. Ragging shall be treated as a serious offence and shall be dealt with as per the UGC Regulations.
- ✓ Social gathering in the hostel complex are not permitted without the prior and written consent of the warden.
- ✓ Hostel residents are not allowed to entertain unauthorized person(s). Anyone found in violation to this will be fined and penalized according to Institute rule.
- ✓ Resident students found in act of violence or misconduct outside the hostel premises is not the liability of the Warden or Institute administration. In such cases the resident

student is responsible for himself/herself.

b. Upkeep of the Hostel

- ✓ Residents are responsible for keeping the hostel premises clean. Residents are advised to keep their room, the mess hall, common room, visitor's room, stair case and toilets and bathrooms clean at all time.
- ✓ All water taps, fans and electrical appliances must be turned / switched off when not in use.
- ✓ Noise level must be kept low to allow others the opportunity to study or sleep in comfort. Television, provided in the common room must be switched off or volume toned down after 10:00 pm. These rules are intended to ensure a conducive environment for all residents.
- ✓ The use of electrical appliances such as immersion heaters, electric stove/heater are forbidden in any of the room allotted for residence. Cooking, making tea etc is strictly prohibited in the room.
- ✓ Students shall conduct a room check to verify the inventory provided and endorse on the Check In/Check out Form. Any missing or damaged items must be reported to the hostel authority immediately. Otherwise, it will be assumed that all furnishings and fittings are in good order. The student will be responsible for any loss or damage thereafter.
- ✓ Resident(s) should not move any hostel property (table, chair, fan, cupboard, etc.) from one room to another. Any damage to hostel property must be reported immediately to the hostel authority/warden. Resident(s) will be charged for any damages except damages caused by normal wear and tear or faulty products/repairs.
- ✓ Residents will be personally responsible for the safety of their belongings. Residents are advised to keep their personal belongings and any other valuable items locked in their personal locker even when they are out for a short period. Any loss or theft of item(s) should be immediately reported to the hostel authority.
- ✓ Pasting of posters, writings, slogans and any kind of defacing the hostel in any form is not allowed.
- ✓ Electrician, contractors or any other service person may enter rooms as and when necessary in the course of their duty under the directive and permission from the warden only.
- ✓ The Hostel authority reserves the right to enter and inspect a hostel in the interests of health, safety and proper conduct of the students.
- ✓ Entry may also be made without prior notice, during normal hours, for the purpose of conducting non-emergency inspections. For repairs and maintenance purposes of showing the premises, students will be notified in advance by the hostel authority.

c. Entry and Timings

- ✓ It is required that residents of the hostel produce their Institute Identity card at the entrance of the hostel whenever he/she enters the hostel premises.
- ✓ Entry into the hostel is allowed till 7.00pm. Any late entries/night exits should be

informed to the Warden in advance and permission to be obtained.

- ✓ Resident who wish to stay out of hostel should duly inform the authority about the same.
- ✓ If any student is absent/does not return to the hostel after 24 hours without any information of his/her whereabouts, roommate(s) or fellow residents should inform the hostel authority immediately.

d. Visitors and Guests

- ✓ All visitors to the hostel including the parents/guardian will have to make necessary entries in the visitor's book available at the hostel entrance.
- ✓ Visitors are restricted to the visitors lobby only.
- ✓ No visitors will be allowed inside the hostel premises after 7.00 pm.
- ✓ The visit of male guest(s) into female residence and vice versa is prohibited.

e. Allotment & Vacating of Hostel Accommodation

A limited hostel accommodation is available. It will be allotted on the basis of “**First come First Serve**” on full payment of one semester mess bill and hostel fees.

The criteria for allotment of hostel accommodation by the Institute are as under:

- i. **First Priority:** Students admitted to a full-time Programme of study and are from outside the state of Tamil Nadu.
 - ii. **Second Priority:** Students admitted to a full-time Programme of study and are from outside the Coimbatore district.
 - iii. **Third Priority:** Students from within the district of Coimbatore but living outside the Town agglomeration of Coimbatore.
 - iv. **Fourth Priority:** All others.
- ✓ Accommodation in the hostel is allowed initially for the current semester and is subsequently renewed subject to the continuing registration and fulfillment of academic requirements by the resident from time to time. All residents should subject themselves to the proof of registration and payment of all hostel dues of the previous semester to be eligible to continue as resident of the hostel.
 - ✓ The Director may allot accommodation to students, in exceptional situations, on case to case basis.
 - ✓ The maximum duration of stay in the hostel is the normal prescribed period of the programmes of studies. Once the resident completed his/her Programme of studies, he/she is no longer a resident and is required to vacate the hostel.
 - ✓ Terminal student must surrender his/her rooms to the concerned warden latest by last day in the case of even semester and last day in the case of odd semester.
 - ✓ Resident who discontinues his/her studies from the Institute in the middle of a semester should clear all his/her mess dues and submit an application for vacating the hostel to the Senior Warden. Resident must hand over to the caretaker the complete charge of his /her room with all furniture and fixtures

in tact at the time of vacating the room.

f. Constitution of the Hostel Committee:

The Hostel Committee shall have the following members:

- ✓ Warden who shall be ex-officio convener
- ✓ A senior member nominated by the Warden in consultation with the Director
- ✓ Two members of institute

g. Roles and Responsibilities of the Hostel Committee:

In principle, the Hostel Committee shall discuss and make recommendations regarding:

- ✓ Allotment
- ✓ Discipline of resident students
- ✓ Maintenance and development of the Hostel
- ✓ Matters related to Mess
- ✓ Any other matter pertaining to the Hostel

h. Hostel facility is available only for girl students.

6. ATTENDANCE, DISCIPLINARY & GRIEVANCE COMMITTEE

- a.** This committee is constituted for the smooth functioning of the various activities of the Institute and it consists of the following members :

Head of the Department / Academic I/c. - Chairman of the Committee
Controller of Examinations - Convenor
Class Advisors - Members

- b.** The Committee will deliberate the following matters.

- i. The matters relating to condonation and attendance shortages of students.
- ii. All grievances and disciplinary problems of the students relating to malpractices in test, semester examinations, etc.

- c.** The meeting of the committee will be convened by the Controller of Examination. The Committee will send periodical report and the recommendations to the Director for consideration / ratification / approval.

7. MENTORSHIP

To help the students in planning their courses of study and for getting general inputs regarding either the academic programme or any other activity, counselling every student will be assigned to a faculty member who will be the mentor. Student would be allotted for each faculty mentors by the Head – Textiles / Management.

8. MALPRACTICE IN EXAMINATIONS

- a.** If a student is found copying in a test conducted for Continuous internal assessment, he / she will be given zero marks for that test and severely warned.
- b.** If a student is found copying in the end semester examination he/she will be debarred from writing that particular paper in that semester. Based on the nature of malpractice, he/she may be debarred for two more attempts of writing that paper/all papers. The disciplinary committee will make recommendations for necessary disciplinary action.
- c.** During the examinations the candidates shall be under the disciplinary control of the Chief Superintendent of the centre who shall issue the necessary instructions. If a

candidate disobeys instructions or misbehaves with any member of the supervisory staff or with any of the invigilators at the Centre, he/she may be expelled from the examination hall for that session.

- d. The invigilator shall immediately report the facts of such a case with full details of evidence to the Controller of Examinations who will refer the matter to the Discipline Committee. The Committee will make recommendations for disciplinary action.
- e. Every day, before the examination begins, the invigilators shall call upon all the candidates to search their personal things, tables, desks, etc., and ask them to hand over all papers, books, notes or other reference material which they are not allowed to have in their possession or accessible to them in the examination hall. When a late-comer is admitted this warning shall be repeated to him at the time of entrance to the examination hall. They are also to ensure that each candidate has his/her identification card and hall ticket with him/her.

f. Use of Unfair means:

A candidate shall not use unfair means in connection with the examination. The following shall be deemed to be unfair means:

- ✓ Found in possession of incriminating material related/unrelated to the subject of the examination concerned.
- ✓ Found copying either from the possessed material or from a neighbor or from any devices.
- ✓ Inter-changing of answer scripts.
- ✓ Change of seat for copying.
- ✓ Trying to help other candidates.
- ✓ Found consulting neighbor.
- ✓ Exchange of answer sheets or relevant materials.
- ✓ Writing register number of some other candidate in the main answer paper.
- ✓ Insertion of pre-written answer sheets (Main sheets or Additional Sheets).
- ✓ Threatening the invigilator or insubordinate behavior as reported by the Chief Superintendent and/or Hall Superintendent.
- ✓ Consulting the invigilator for answering the questions in the examination.
- ✓ Cases of impersonation.
- ✓ Mass copying.

Note:

- ✓ The Director may declare any other act of omission or commission to be unfair means in respect of any or all the examination.
- ✓ Where the invigilator in charge is satisfied that one third (1/3) or more students were involved in using unfair-means or copying in a particular Examination Hall, it shall be deemed to be a case of mass copying.
- ✓ The Hall Superintendent of the examination centre shall report to the Controller of Examinations, without delay and on the day of the occurrence if possible, each case where use of unfair means in the examination is

suspected or discovered with full details of the evidence in support thereof and the statement of the candidate concerned, if any, on the forms supplied by the Controller of Examinations for the purpose.

- ✓ A candidate shall not be forced to give a statement by the invigilator. The act of his/her having refused to make a statement shall be recorded by the invigilator and shall be attested by two other members of the supervisory staff on duty at the time of occurrence of the incident.
- ✓ A candidate detected or suspected of using unfair means in the examination may be permitted to answer the question paper, but on separate answer-book. The answer-book in which the use of unfair means is suspected shall be seized by the invigilator, who shall send both the answer-books to the Controller of Examinations with his report. This will not affect the concerned candidate appearing in the rest of the examinations.
- ✓ All cases of use of unfair means shall be reported immediately to the Controller of Examinations by the examiner, paper-setter, evaluator, moderator, tabulator or the person connected with the semester examination as the case may be, with all relevant material.

9. INSTITUTE – INDUSTRY INTERACTION

SVPISTM provides practical industrial training. The students are taken to leading textile manufacturing units, textile research institutions, management institutes and export houses enabling them to get acquainted with the real time processes and the latest developments in the industry. Executives from Industry will deliver lectures and share their experiences on a regular basis with the students.

10. PLACEMENT ASSISTANCE CELL

A separate placement assistance cell is in place which is in constant touch with the leading textile manufacturing units, export units, overseas buying houses etc., and arrange campus recruitment. The placement cell at SVPISTM consists of a faculty coordinator and student coordinators from the programmes B.Sc, BBA and MBA. The placement cell will facilitate in creating opportunities and directions for the registered students towards placements.

a. Rules and Regulations of Placement Cell

- ✓ All the final year students are required to read the placement rules and regulations, interested students should sign the registration form within two weeks from the commencement of classes for final year.
- ✓ All the students are expected to know about various activities which would be planned from time to time depending on need from the student coordinators
- ✓ Each student has to be a part of their respective mail groups through which they will be informed all details of the placement program.
- ✓ The students will be duly informed through the student's coordinators and notice board about the companies interested in placing students and it is the responsibility

of the students to get appraised of the happening of the placement cell.

- ✓ Companies deemed to be fit for conducting campus interview in our institute will make their pre-placement presentation. Any clarification regarding the company may be done before the interview itself.
- ✓ Students should make the decision of attending the interview based on the pre-placement presentations. Also they should come in full formal dress code to attend the same.
- ✓ Till the official information about the selection of the candidates is received from the company, students are allowed to participate in other companies to a maximum of three chances.
- ✓ Once the placement cell receives the official information about the selection, the selected student will not be allowed to attend any other company interview. This is to ensure the policy of “one man – one job” to all the students. However after all students are placed such students will be given option for their future appearance.
- ✓ Following are considered as campus placement.
 - Student getting placement through campus placement interview coordinated by placement cell.
 - Student getting placed on the basis of their on-going final project in the respective company.
 - Any other assistance from the institute.
- ✓ Registration of the student in placement cell is considered to be cancelled due to following reasons.
 - Student not interested and not involved in the placement activities.
 - Student who is continuously absent / not attending interviews.
 - Student who is found by any means that they got the job personally and intentionally trying for better prospects through the institute.
 - Any misconduct or indiscipline by students inside the campus.
- ✓ The above mentioned rules are subject to change and it is within the discretion of the placement cell.
- ✓ By registering with the placement cell does not mean it is a guarantee for job.

11. CLASS COMMITTEE

- a. Each programme will have a Class Committee comprising the following members.
 - i. Chairman: Head – Management / Textiles
 - ii. All the faculty members handling courses for that class as members.
 - iii. Two students’ representatives with a minimum of 75% attendance during the semester shall be nominated by the class as members.
- b. The functions of the Class Committee will be as follows :
- c. The Class Committee shall meet post all CIA written tests.
- d. The first meeting will be held within two weeks from the date of commencement of

classes for the semester.

- e. The class committee shall meaningfully interact and express opinions and suggestions to improve the effectiveness of teaching – learning process and analyse the performance of the students in the class test.
- f. The Class Committee Minutes and the action taken report will be submitted to the Director.

12. TEMPORARY BREAK OF STUDY FROM THE PROGRAMME

A student may be permitted by the Director to withdraw from the programme for a maximum duration of one year, for reasons of medical grounds, physical fitness or other valid reasons subject to the recommendations of the class advisor in consent with the Head – Textiles/ Management. In such cases, the student will have to fulfil all conditions to redo the programme.

13. PERFORMANCE ANALYSIS COMMITTEE

The Performance Analysis Committee will consist of Director as Chairman, Controller of Examinations as convenor and the members will be Head – Textiles / Management, all members of faculty and the class advisors. The meeting of the Performance Analysis Committee is to be held within four weeks from the last day of the semester examinations to analyse the performance of the students in all subjects of study (continuous and end semester).

14. RESULTS DECLARATION COMMITTEE

Results Declaration Committee will have Director as Chairman, Head – Textiles / Management and Controller of Examinations as members. After analysing the performance of the students in each course the committee is empowered to declare the results. If necessary, moderation of results will be done by this Committee. The findings and decisions of the performance analysis and results declaration committee is to be passed on to the Controller of Examinations immediately.

II. REGULATIONS

Definitions and Nomenclature

- Institute – Sardar Vallabhbhai Patel International School of Textiles and Management, Coimbatore.
- University / Collaborating University – Central University of Tamil Nadu, Thiruvavur.
- Programme – Bachelor of Science in Textiles & Fashion
- Course - Every paper / subject of study offered under the programme.
- Curriculum - The various components / courses / labs in each programme that provides appropriate outcomes (knowledge, skills and attitude/behavior) towards the completion and objectives of the programme is called curriculum.
- Credits - Course work is measured in units called credit hours or credits. The number of lecture hours allocated for a course per week is the number of credits for that course. In case of practical and labs two hours will account for one credit.

1. QUALIFICATION FOR ADMISSION

- a. Students for admission to the B.Sc. Programme will be required to fulfil the minimum qualification as specified in the following table.

S.No.	Programme	Minimum Qualification
1.	B.Sc. – Textiles & Fashion	A pass in plus two examination or equivalent of any recognized board in India with science stream/vocational stream with textile subjects, having 50% of marks for General and 45% marks for OBC (NCL)/SC/ST/PWD candidates.

- b. The Institute will prescribe from time to time other eligibility conditions for admission regarding the marks required to be secured by the student in the qualifying examination, minimum admissible percentage marks therein, permitted number of attempts for obtaining the qualifying examination, passing requirements in the respective entrance tests conducted by this institute for admissions, Common University Entrance Test (CUET) scores or other competitive entrance tests, physical fitness requirements, sponsorship etc.
- c. The detailed information about the eligibility & entrance tests can be had from the websites: www.svpistm.ac.in, www.cutn.ac.in & www.cucetexam.in

2. DURATION OF THE PROGRAMME

- a. The duration of the programmes are as follows:

Programme	Duration	
B.Sc.Textiles & Fashion (Full-time)	6 Semesters	3 Years
B.Sc. Textiles & Fashion Hons. (Full-time)	8 Semesters	4 Years
B.Sc. Textiles & Fashion Hons. with Research (Full-time)	8 Semesters	4 Years

The programme is designed with reference to the New Education Policy of Government of India.

- b. 3-year UG Degree:
Students who wish to undergo a 3-year UG programme will be awarded UG Degree in the major discipline after successful completion of three years.
- c. 4-year UG Degree (Honours):
A four-year UG Honours degree in the major discipline will be awarded to those who complete a four-year degree programme.
- d. 4-year UG Degree (Honours with Research):
Students who secure 75% marks and above in the first six semesters and wish to undertake research at the undergraduate level can choose a research stream in the fourth

year. They should do a research dissertation under the guidance of a faculty member of the College. The dissertation will be in the major discipline and will be awarded a UG Degree (Honours with Research).

e. Exit options

- i. 6 semesters/3years – towards award of B.Sc Textiles & Fashion
- ii. 8 semesters/4 years-towards award of B.Sc Textiles & Fashion (Hons. / Hons. with Research)
- f. The duration of each semester will normally be 90 working days. The normal working days of 90 in each semester is exempted for semester VI/ VIII in which the students would spend time in industry/field for their project work.
- g. A student who is unable to complete the programme within the prescribed duration (6 semesters) may be allowed further to a maximum of 2 academic years after the completion of programme duration to complete the programme after which the marks obtained through Continual Internal Assessment (CIA) will be void.

3. STRUCTURE OF THE PROGRAMME

- a. Student has an option of exiting after successful completion of three years with B.Sc Textiles & Fashion or opt for a four year programme with B.Sc Textiles & Fashion (Hons. / Hons. with Research).
- b. The programme (B.Sc Textiles & Fashion) comprises 51 courses including 21 Major core courses, 3 Multidisciplinary Courses, 9 Minor Stream courses, 7 Ability Enhancement Courses, 4 Value Added Courses, 4 Skill Enhancement course, 2 Internships and 1 project work. The programme consist of 146 credit up to 6th semester.
- c. The programme (B.Sc.(Hons.)) consists of 61 courses including 27 Major core courses, 3 Multidisciplinary courses ,13 Minor Stream courses, 7 Ability Enhancement Courses, 4 Value Added Courses, 4 Skill Enhancement course, 2 Internships ,1 project work . The programme consists of 177 credits upto 8th semester.

2.

- a. The programme (B.Sc.(Hons.with Research)) consists of 58 courses including 26 Major core courses, 3 Multidisciplinary courses ,10 Minor Stream courses ,7 Ability Enhancement Courses, 4 Value Added Courses, 4 Skill Enhancement course, 2 Internships ,1 Project Work, 1 Dissertation. The programme consists of 177 credits up to 8th semester.
- b. The student can choose the elective courses from the list specified for concerned semester. Elective courses can be chosen by the student groups who would specialize in that elective unanimously. If the students opting for an elective are not in a position to have a consensus in selection of elective courses, rank order preference method would be adopted for finalizing the courses under electives.
- c. For the project work at sixth semester / eighth semester, student will be permitted by the Programme Co-ordinator to work on an independent project under the supervision of a faculty member from the Institute (Internal Guide) and if required, be under a corporate guide assigned by the organization (External Guide).
- d. The duration of the project will be three days per week during the sixth semester / eighth semester. At the end of the semester the student has to submit the project report.

- e. The first 6 semesters are designed to incorporate core competencies in the stream Textiles & Fashion and can have an exit option after completion of 6 semesters, which will qualify for the award of degree of B.Sc Textiles & Fashion, subjected to fulfilling the minimum credit requirement for award of the degree. On completion of 8 semesters / 4 years, the student would be awarded B.Sc Textiles & Fashion (Hons. / Hons. With Research).
- f. The Student has to inform the HoD at the start of the third year, if willing to proceed with the fourth year.

4. TYPES OF COURSES

- a. **Major Core Courses:** Major discipline is the discipline or subject of main focus and the degree will be awarded in that discipline. For students enrolled in Department of Textiles, courses related to Textile studies are marked as 'Major core Course'.
- b. **Minor Stream Courses:** These courses help a student to gain a broader understanding beyond the major discipline. The student can choose the elective courses from the list specified for concerned semester. Elective courses can be chosen by the student groups who would specialize in that elective unanimously. If the students opting for an elective are not in a position to have a consensus in selection of elective courses, rank order preference method would be adopted for finalizing the courses under electives.
- c. **Other courses :**
 - a) **Skill Enhancing Laboratory Courses:** All UG students are required to undergo skill enhancing practical courses to develop their skillset through hands on practical laboratory classes.
 - b) **Multidisciplinary Courses:** All UG students are required to undergo 3 introductory-level courses relating to any of the broad disciplines relating to Natural and Physical Sciences / Mathematics, Statistics. These courses are intended to broaden the intellectual experience and form part of liberal arts and science education.
 - c) **Ability Enhancement Courses (Language):** Students are required to achieve competency in a Modern Indian Language (MIL) and in the English language with special emphasis on language and communication skills.
 - d) **Value-Added Courses:**
 - i. As an initiative towards developing students as industry ready professionals and competent entrepreneurs, value added courses are introduced in final semester.
 - ii. The courses are prescribed during the sixth semester based on the inputs from the students, industry experts, and feedback from the employers, industry readiness requirements, contemporary practices and trending topics at the time when the course is to be offered.
 - iii. The courses will be delivered by industry experts / external agencies / practitioners / academic experts in the respective discipline in which the course is designed. They bring the knowhow contemporary industry practices to the college doorstep.
 - iv. Multiple value added courses would be designed based on the said parameters and would be presented to the students for their choice of

selecting two courses. A particular course would be delivered only if 40% of the batch strength opts for that course.

- v. Students shall choose minimum of two courses or more based on their interests and account the credit points.
- vi. These value added courses are voluntary basis and credits obtained will be added to the course credit as mentioned under 3b/ 3c.
- vii. These credits cannot be compensated to the course credit that is mentioned under 3b/ 3c.

e) Self-interest courses

- i. Our predominant focus today is to curate the wealth of information that is freely available on the web into high quality learning-outcome to one's interest, learning style and pace of learning.
- ii. Self-learning courses based on the students' unique interests through open source learning is introduced among the students to make them gain a competitive advantage in the market.
- iii. This flexible learning provides the students a broad spectrum of study.
- iv. Each student can undergo one open source course through MOOC, SWAYAM, NPTEL etc., in sixth semester based on their interest which is related to the programme of study.
- v. These courses shall account to one credit on successful completion of the course as prescribed by the organizer. The credits such obtained will be added to the course credit as mentioned under 3b/ 3c.
- vi. These credits cannot be compensated to the course credit that is mentioned under 3b/ 3c.

d. Internship:

With the consultation of a faculty guide and the coordinator, every student shall undertake suitable internships. Each internship shall be for a minimum of Three weeks at an industry during the summer vacation. Report of the Summer Internship is to be submitted by the students within 15 days from the commencement of the third and fifth Semester respectively as per the format and guidelines specified by the coordinator for report preparation.

The first internship should preferably be undertaken in the Textile industry to help students understand the fundamental concepts such as fiber types, yarn manufacturing, fabric production, dyeing, printing, and finishing processes. The second internship should preferably be in the apparel/ technical textiles to help students understand the importance and application of in real-world scenarios.

e. Project :

Every student shall undertake a project work in the sixth semester in consultation with the faculty guide and the project coordinator. The project work shall be carried out in institution / industry / research organization. This project is to be carried out for duration of 12 weeks.

f. Mini Project:

Students pursuing B,Sc Textiles & Fashion (Hons.) shall undertake a Mini Project during the eighth semester under the guidance of an allotted faculty

member. The project work shall be carried out in institution / industry / research organization. This mini project is to be carried out for duration of 8 weeks.

g. Dissertation:

Students choosing a four year Bachelor's degree (Hons. with Research) are required to take up Dissertation under the guidance of a faculty member. The students are expected to complete the Dissertation in the eighth semester. The research outcomes of their project work may be published in peer-reviewed journals or may be presented in conferences /seminars.

5. ASSESSMENT OF THEORY COURSES

ASSESSMENT	MARKS
Continuous Internal Assessment	40
End Semester Examinations	60

Continuous Internal Assessment - Allotted marks are 40 for each theory course and the marks are inclusive of a written test and an assignment. The assignment can be in the form of article, seminar, presentation and etc. The choice of assignment is left with the faculty concerned.

- ✓ Two written exams (Continuous Internal Assessment Test I & II) with 90 minutes duration for 50 marks may be conducted and this will be converted to 20 marks for each course/subject.
- ✓ Students may be asked to submit at least two assignments in each course during each semester.
- ✓ Student should also present papers and participate in seminars conducted for each subject.
- ✓ Students may be asked pursue on and submit appropriate documents to one or more of the assessment methods.
- ✓ The presentations by students would be assessed based on RUBRICS.

Criteria:

- Contributions
- Attitude
- Preparedness & Focus
- Quality of Work
- Timely completion

POINTS	AWARD OF MARKS
≥ 90	10 Marks
≥ 80 but < 90	8 Marks
≥ 60 but < 80	6 Marks
≥ 40 but < 60	4Marks
= 40	2 Marks

- ✓ Controller of Examinations will issue the schedule and conduct the written test. Award of internal marks by assessment through various methods specified is the responsibility of the faculty handling the particular course.

- ✓ The internal marks obtained by the students will be duly informed before the semester examinations.

The marks may be allocated as follows:

Written tests (Each test carries 10 marks)	20 Marks
Assignments / Seminars / Case studies / Article review / Paper presentation / Publications / Field study / Concept viva / Test based on MCQs / Quizzes etc.	10 Marks
Students' Presentation/mini project/any activity as decided by the respective subject faculty	10 Marks
Total	40 Marks

Question Paper Pattern (CIA)

Total Marks: 50

Duration: 90 Minutes

PART A Answer Any Five

(5x3=15 Marks)

- 1.
- 2.
- c.
-
- 7.

(Remember & Understand)

PART B Answer Any Two

(2x10=20 Marks)

- 8.
- 9.
- 10.

(Apply, Analyze & Evaluate)

PART C Compulsory Question (Case study)

(1x15=15Marks)

- 11.

(Evaluate & Create)

6. ASSESSMENT OF PRACTICAL COURSES

- a. List of exercise for the subjects that contain practical shall be designed by the faculty member who handles the subject for the semester and executed under his/her supervision. Record shall be maintained by the individual student for the exercises carried out.
- b. Maximum Marks for practical is 100 which consist of :

Continuous Internal Assessment (Internal Marks)	End Semester (External Marks)
60	40

- c. End semester exam for practical subjects which has credit, shall be conducted by the internal faculty member in the presence of an External Examiner. The Question paper shall be set by Internal Examiner in consultation with External Examiners and exercises are conducted for the duration designed by them. The assessment is carried out subsequently along with a viva-voce and the results for the same are forwarded to COE.
- d. Criteria for evaluation of experiment may be framed by the course faculty based on the laboratory course.

7. EVALUATION OF INTERNSHIP, PROJECT WORK AND DISSERTATION:

a. Internship

- ✓ For evaluation of internship, the student will make a presentation of the report on a

date to be announced by the Controller of Examinations. The Presentation and Viva-voce will be evaluated by a team consisting of the faculty guide, the Internal Examiner and another faculty member nominated as the External Examiner.

- ✓ During the internship period students will make presentation once in a week to the concerned faculty guide, and the final presentation-cum-viva voce examination marks shall be allotted as follows :

Type of assessment	Continuous Internal Assessment (Internal)	End Semester
Weekly Review (3)	45	-
Observation	15	-
Report	-	30
Presentation & viva Voce	-	10
Total (100)	60	40

- ✓ The internship report of the students shall be evaluated for a maximum of 100 marks of which 60 marks would be allotted for internal assessment and 40 marks would be allotted for external examination. A minimum of 20 marks should be obtained in external examination and in total 50 marks (Internal + External) should be obtained to pass.

b. Project work:

- ✓ During the project period students will make presentations to the faculty guide / faculty co-ordinator. The final presentation-cum-viva voce examination marks shall be allotted as follows:

Type of assessment	Continuous Internal Assessment (Internal)	End Semester
Project Reviews (3)	60	-
Report	-	80
Presentation & viva Voce	20	40
Total (200)	80	120

- ✓ The project work of the students shall be evaluated for a maximum of 200 marks of which 80 marks would be allotted for internal assessment and 120 marks would be allotted for external examination. A minimum of 60 marks should be obtained in external examination and in total 100 marks (Internal + External) should be obtained to get pass.
- ✓ For evaluation of the project, the student will make a presentation of the project work on a date to be announced by the Controller of Examinations. The presentation and viva-voce will be evaluated by a team consisting of an Internal Examiner and an External Examiner assigned by the Controller of Examination.

c. MINI PROJECT

- ✓ During the miniproject period students will make presentation once in a week to the concerned faculty guide, and the final presentation-cum viva voce examination marks shall be allotted as follows :

Type of assessment	Continuous Internal Assessment (Internal)	End Semester
Weekly Review (3)	45	-
Observation	15	-
Report	-	30
Presentation & viva voce	-	10
Total (100)	60	40

- ✓ The mini project report of the students shall be evaluated for a maximum of 100 marks of which 60 marks would be allotted for internal assessment & 40marks would be allotted for external examination. A minimum of 20 marks should be obtained in external examination and in total 50marks (Internal + External) should be obtained to pass.

d. Dissertation

- ✓ The dissertation for B.Sc Textiles & Fashion (4th year) is to be undertaken during semester VIII. It involves problem identification, literature survey, feasibility study, requirements gathering, work plan, detailed design, implementation, testing, optimization, documentation, demonstration etc.
- ✓ During the dissertation students will make presentations to the faculty guide / faculty co-ordinator. The final presentation-cum-viva voce examination marks shall be allotted as follows:

Type of assessment	Continuous Internal Assessment (Internal)	End Semester
Project Reviews (3)	60	-
Report	-	80
Presentation & viva Voce	20	40
Total (200)	80	120

- ✓ The dissertation work of the students shall be evaluated for a maximum of 200 marks of which 80 marks would be allotted for internal assessment and 120 marks would be allotted for external examination. A minimum of 60 marks should be obtained in external examination and in total 100 marks (Internal + External) should be obtained to get pass.
- ✓ For evaluation of the dissertation, the student will make a presentation of the dissertation work on a date to be announced by the Controller of Examinations. The

presentation and viva-voce will be evaluated by a team consisting of an Internal Examiner and an External Examiner assigned by the Controller of Examinations.

8. ELIGIBILITY CRITERIA FOR APPEARING IN EXAMINATIONS AND ATTENDANCE REQUIREMENT

Students fulfilling the following criteria will be allowed to appear in the examinations:

- Paid all the fees and dues to the Institute
 - He/She has minimum prescribed attendance in a semester in all courses.
- ✓ The minimum required attendance is 75% of the hours conducted for the roll out of each individual course (inclusive of lecture hours, tutorial hours and practical lab hours) and other prescribed learning activities in each course.
- ✓ The Institute may, for valid and convincing reasons, condone a shortage in attendance on the recommendation of the Head – Managements and with the approval of the Director.

The condonation of attendance shortage shall be governed by the following provisions:

Attendance between 70% and 74.9%: Eligible for condonation on payment of a condonation fee of **₹500 per course**.

Attendance between 65% and 69.9%: Eligible for condonation on payment of a condonation fee of **₹1,000 per course**.

Attendance below 65%: Not eligible for condonation. Such students shall not be permitted to appear for the End Semester Examination

- ü The students deputed by the Institute to take part in the extra and co-curricular events shall be given a concession of up to 5% attendance, if necessary, in addition to the relaxations in the attendance requirement as provided above. Such concession would be available for the days of actual participation in the event, including journey time with the prior approval of the Director of the Institute. Such concession of up to 5 % in addition to the relaxation of attendance specified in “item c” may also be permitted for valid medical and physical illness.
- ✓ The above said relaxations stated here will be considered for students whose academic progress and conduct is observed satisfactory.
- ✓ The students who could not manage 75% attendance for two consecutive semesters have to repeat the semesters in the subsequent academic year. In such cases, the student will have to fulfil all the conditions to redo the programme.

9. END SEMESTER EXAMINATIONS

- ✓ End semester examinations will be scheduled by the COE / Director for all Practical and Theory courses. The filled in Application forms with the payment of Examination fee for the students is Rs. 300/- per course (including Practical) to be submitted to the COE section within the stipulated time. The question paper will be set by an external examiner.
- ✓ The benchmark will be conducted for 100 Marks with a duration of 3 hours. A student should secure a minimum of 50 marks in the examination to get a pass in each course. Marks obtained by the students in the examination will be converted to 60%.

- ✓ A minimum of 50% (End Semester and Continuous Assessment) in each course is required for obtaining a pass and the grades.
- ✓ Candidates with benchmark disabilities shall be provided reasonable examination facilities in accordance with the Rights of Persons with Disabilities Act, 2016 and applicable Government guidelines. Eligible candidates requiring a scribe/reader/lab assistant may be permitted the facility on submission of the prescribed medical certificate. **Compensatory Time** shall be provided as per the applicable norms, with a minimum of **20 minutes per hour** for candidates availing scribe assistance and **at least 1 hour for a 3-hour examination** for candidates not availing scribe assistance. For examinations of less than one hour, compensatory time shall be provided on a pro-rata basis, subject to a minimum of **5 minutes**.

Question Paper Pattern (ESE)

Total Marks: 100

Duration: 180 Minutes

PART A Answer all questions

(10x3= 30 Marks)

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

(Remember & Understand)

PART B Answer all questions

(5x10=50 Marks)

11. A or
B
12. A or
B
13. A or
B
14. A or
B
15. A or
B

(Apply, Analyze & Evaluate)

PART C Compulsory question

(1x20=20 Marks)

- 16.

(Evaluate & Create)

10. MOVEMENT TO HIGHER SEMESTER

- ✓ Every student should register for the next semester along with the statement of results of the previous semester, proof of payment of tuition fees and mess fees (if applicable).
- ✓ The following students would not be allowed to proceed to the next semester and would have to complete the semester which they had not completed only at the next available opportunity.
 - Students who had failed to gain the minimum attendance in one or more courses conducted in the preceding semester
 - Students who had not completed the academic requirements for the course(s) in the preceding semester

- Students who had been barred from taking the continuous internal assessment and or end semester examination for a course(s) other than valid reasons or medical grounds as approved by Director of the institute
 - Students who have got pending payments due to the institute
 - Students who are barred in the preceding semester on grounds and practices of indiscipline
- ✓ A student who is permitted to discontinue may re-join the programme at the appropriate semester only along with the students enrolled at the time of regular commencement of that semester as per the academic schedule of the institute.
- ✓ A student who discontinues and re-joins shall be governed by the rules, regulations, courses of study and syllabus followed, at the time of his / her re-joining the programme.
- ✓ Any student appearing for supplementary examinations in any subject, two years after the first registration for that subject, will be governed by the regulations and syllabus followed at the time when the supplementary examination is taken.

11. PERFORMANCE EVALUATION SYSTEM

- ✓ Assessment of a subject will be done on mark basis. The Performance Analysis Committee shall meet within three weeks after the completion of all examinations to analyse the performance of students in all assessments (continuous and end semester) for each course.
- ✓ The letter grades and the corresponding grade points are as follows: Grading system for the programme is as follow:

Marks Range	Corresponding Grade	Grade Point
Below 50	RA (Re- Appearance)	N.A
50 and above but below 60	B (Above Average)	6
60 and above but below 70	B+ (Good)	7
70 and above but below 80	A (Very Good)	8
80 and above but below 90	A+ (Excellent)	9
90 and above 100	O (Outstanding)	10

✓ Classification

A student in order to be eligible for the award of the Degree must obtain a minimum of “B” grade in each course. The results of successful candidates will be classified as indicated below on the basis of the Cumulative Grade Point Average (CGPA):

S. No.	Range of CGPA	Classification (provided the student pass all courses in the first attempt)
1	CGPA of 8.0 and above and up to 10.0	First Class with Distinction
2	CGPA of 6.5 and above and up to 7.9	First Class
3	CGPA of 5.5 and above and up to 6.4	Second Class

12. GRADE SHEET

- ✓ After the results are declared, Grade Sheets will be issued to each student which will contain the list of subjects for that semester and the grades obtained by the student.
- ✓ Grade Point Average (GPA) for each semester will be calculated only for those students who have passed all the subjects of that semester. Similarly, Cumulative Grade Point Average (CGPA) up to any semester will be calculated only for those students who have passed all the subjects up to that semester. GPA is calculated as follows:

$$\text{GPA} = \frac{\sum(C_i * \text{GP}_i)}{\sum(C_i)}$$

Where C_i - is the credit assigned to the course

GP_i - is the grade point obtained by the student

- ✓ On successful completion of the programme, the CGPA is calculated as follows :

$$\text{CGPA} = \frac{\sum(C_i * \text{GP}_i)}{N}$$

Where C_i - is the credit assigned to the course

GP_i - is the grade point obtained by the student

N - is the total number of credits for the entire programme

13. ELIGIBILITY TO AWARD B.Sc. Textiles & Fashion / B.Sc Textiles & Fashion (Hons. / Hons. With Research)

A student shall be eligible for the award of B.Sc, Textiles & Fashion / B.Sc Textiles & Fashion (Hons. / Hons. With Research) if the student has,

- ✓ Undergone the prescribed programme of study and has passed in all the courses specified for the programme including the value added courses and self-interest courses.
- ✓ No dues to the Institute, Library, Hostel etc.,
- ✓ No disciplinary action pending against him / her.

14. CONSOLIDATED STATEMENT OF GRADES

- ✓ At the end of the programme, all successful students will be furnished with a consolidated statement of grades which will contain the following particulars :
 - Grades in the courses of the semesters
 - CGPA
 - Classification (First class with Distinction / First class / Second class.
- ✓ A student who has completed the minimum period and has undergone all the courses specified in a programme may be given a course completion certificate.
- ✓ At the end of the programme all successful students can apply for the provisional certificate on payment of prescribed fees of Rs.500/- through proper application to the CoE.

15. REVALUATION OF ANSWER SCRIPTS

Within one week from the announcement of examination result, a student may ask for photocopies of his / her semester / supplementary examination answer paper in any subject on payment of Rs. 400/- per course through proper application to the Controller of Examinations. Subsequently, within a week's time he / she can opt for revaluation if he / she so desires, on payment of Rs. 500/- per course through proper application to the Controller of Examinations.

16. SUPPLEMENTARY EXAMINATIONS

Supplementary examination for failed students will be scheduled along with the semester examinations. Students registering for supplementary examinations at the end of any semester should register for the courses he / she intends to appear by submitting application in the prescribed form with the prescribed fee of Rs.300/- per subject for B.Sc Programme to the Controller of Examinations. The candidates can appear for the supplementary examinations for the maximum period of 2 years from their period of study.

17. WITHDRAWAL FROM EXAMINATION

A student may for valid reasons and on the recommendation of the Programme Co-ordinator, be granted permission to withdraw from appearing for the entire Semester Examination as one unit. Withdrawal application shall be valid, only if it is made 10 days before the commencement of the semester examination pertaining to the semester. Such withdrawal shall be permitted only once during the entire programme and shall not be construed as an appearance for the eligibility of a student for the award of classification specified. If a student falls sick in the middle of the Semester Examinations, he / she can withdraw from one or more courses.

III. CURRICULUM & SYLLABUS.

1. MISSION OBJECTIVES (MOs):

MO1	Have attitude and knowledge for the successful professional and technical career
MO2	Have strong foundation in basic sciences, management, mathematics and computational platforms
MO3	Have knowledge on the theory and practices in the field of apparel manufacturing technology and allied areas
MO4	Engross in life-long learning to keep themselves abreast of new developments, and practice and inspire high ethical values and technical standards

2. PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

On successful completion of the program, the student will be able to:

PEO1	Identify, formulate, review literature and critically analyze the technological problems in the textile and fashion industry to reach substantiated conclusion
PEO2	Apply knowledge of mathematics, sciences, textile and fashion technology to get solution for the technological problems in apparel industry
PEO3	Design and develop the solutions to the technological and managerial problems in textile and fashion industry with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations
PEO4	Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions to the technological problems in textile and fashion industry
PEO5	Create, select, and apply appropriate techniques, resources, and modern technology and IT tools for managing apparel manufacturing companies with an understanding of the limitations

3. PROGRAMME OUTCOMES (POs)

On the successful completion of the program, the student will be able to:

PO1	Apply reasoning gained through the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the profession
PO2	Understand the impact of the developed solutions in societal and environmental contexts, and demonstrate the knowledge for sustainable development
PO3	Understand ethical and professional responsibilities
PO4	Function effectively as an individual, and as a member or leader in diverse teams in the profession
PO5	Communicate effectively on complex technical activities with the technical community and with society at large. Able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

4. Mapping of MOs and PEOs

S- Strong, M - Medium

	PEO1	PEO2	PEO3	PEO4	PEO5
MO1	S	S	S	S	S
MO2	S	M	S	S	S
MO3	S	S	S	S	M
MO4	S	S	S	S	S

5. Mapping of PEOs and POs

S- Strong, M - Medium

	PO1	PO2	PO3	PO4	PO5
PEO1	S	S	S	S	S
PEO2	S	S	S	S	S
PEO3	S	S	S	S	S
PEO4	S	S	S	S	S
PEO5	S	S	S	S	S

6. GRADUATE ATTRIBUTES OF B.SC. TEXTILES & FASHION PROGRAMME

1. **Technical skills:** Understanding textiles, garment construction, and relevant technologies.
2. **Creative skills:** Ability to design, illustrate, and innovate.
3. **Critical thinking:** Problem-solving and trend analysis.
4. **Communication skills:** Effective presentation and collaboration.

5. **Business knowledge:** Understanding the fashion industry and entrepreneurship.
6. **Ethical awareness:** Commitment to sustainability and ethical practices.
7. **Adaptability:** Lifelong learning and ability to adjust to industry changes.

List of abbreviations

- L – Lecture Hours / Contact Sessions
- T – Tutorial Hours
- P – Practical Hours
- C-Credit
- CT – Course Type
- AM – Assessment Methodology
- CIA – Continuous Internal Assessment
- ESE – End Semester Examination
- MC – Major (Core)
- MS – Minor Stream
- MD – Multi Disciplinary
- SEC – Skill Enhancement Course
- AEC – Ability Enhancement Course
- VC – Value Added Courses
- I – Internship
- PW – Project Work

1. SUBJECT CURRICULAM

SEMESTER I							
							AM

COURSE CODE	COURSE NAME	L	T	P	C	CT	CIA	ESE
26BSUG11T/ 26BSUG11H	Tamil - I / Hindi - I	3	0	0	3	AEC	40	60
26BSUG12	Communicative English	3	0	0	3	AEC	40	60
26BSUG13	Applied Physics and Chemistry	3	1	0	4	MD	40	60
26BSTX14	Concepts of Fashion and Design	4	0	0	4	MC	40	60
26BSTX15	Fibre and Yarn Science	4	0	0	4	MC	40	60
26BSTX16L	Basic Sketching Laboratory	0	0	4	2	MC	60	40
26BSTX17L	Applied Physics and Chemistry Laboratory	0	0	4	2	MD	60	40
26BSTX18L	Fibre and Yarn Science Laboratory	0	0	4	2	MC	60	40
26BSUG	Indian Knowledge System	2	0	0	2	AEC	100	-
Total lecture/tutorial/practical hours		17	1	12				
Total credits		26						

SEMESTER II								
COURSE CODE	COURSE NAME	L	T	P	C	CT	AM	
							CIA	ESE
26BSUG21T /26BSUG21H	Tamil - II / Hindi – II	3	0	0	3	AEC	40	60
26BSUG22	Technical English	3	0	0	3	AEC	40	60
26BTX23	Applied Statistics	4	0	0	4	MD	40	60
26BSTX24	Fabric Manufacturing	4	0	0	4	MC	40	60
26BSTX25	Apparel Manufacturing - I	4	0	0	4	MC	40	60
26BSTX26	Fashion & Design Psychology	3	0	0	3	MS	40	60
26BSTX27L	Fashion Illustration Laboratory	0	0	4	2	MC	60	40
26BSTX28L	Fabric manufacturing laboratory	0	0	4	2	MC	60	40
26BSTX29	Yoga for Human Excellence#	0	0	2	1	AEC	100	-
Total lecture/tutorial/practical hours		21	0	10				
Total credits		26						
SEMESTER III								
							AM	

COURSE CODE	COURSE NAME	L	T	P	C	CT	CIA	ESE
26BSTX31	Fabric Structure and Analysis	4	0	0	4	MC	40	60
26BSTX32	Apparel Manufacturing - II	4	0	0	4	MC	40	60
26BSTX33	Mathematical Data Analysis	2	0	2	3	AEC	40	60
26BSTX34	Elective – I	3	0	0	3	SEC	40	60
26BSTX35L	Pattern making Laboratory - I	0	0	4	2	MC	60	40
26BSTX36L	Surface Embellishment Laboratory	0	0	4	2	MC	60	40
26BSTX37L	Garment Construction Laboratory - I	0	0	4	2	MC	60	40
26BSTX38L	Fabric Structure and Analysis Laboratory	0	0	4	2	MC	60	40
26BSUG39I	Internship – I	0	0	0	3	SI	60	40
Total lecture/tutorial/practical hours		13	0	18				
Total credits		25						

SEMESTER IV								
COURSE CODE	COURSE NAME	L	T	P	C	CT	AM	
							CIA	ESE
26BSTX41	Textile and Apparel Chemical Processing	4	0	0	4	MC	40	60
26BSTX42	ERP and MIS in Apparel Industry	3	0	0	3	MS	40	60
26BSTX43	Industrial Engineering in Apparel Industry	4	0	0	4	MS	40	60
26BSTX44	Fashion Forecasting and brand management	3	0	0	3	MS	40	60
26BSUG	Environmental science and disaster management	3	0	0	3	VAC	40	60
26BSTX46	Elective – II	3	0	0	3	SEC	40	60
26BSTX47L	Pattern making Laboratory II	0	0	4	2	MC	60	40
26BSTX48L	Garment Construction Laboratory II	0	0	4	2	MC	60	40
26BSTX49L	Textile and Apparel Chemical Processing Laboratory	0	0	4	2	MS	60	40
	Independent study* – course from SWAYAM / NPTEL/ COURSERA-	0	0	0	1	VAC	100	-

	Online/ Offline short term course							
Total lecture/tutorial/practical hours		20	0	12				
Total credits		27						
SEMESTER V								
COURSE CODE	COURSE NAME	L	T	P	C	CT	AM	
							CIA	ESE
26BSTX51	Apparel Marketing and Merchandising	4	0	0	4	MC	40	60
26BSTX52	Sustainable fashion and circular economy	3	0	0	3	MC	40	60
26BSUG53	Textile and Apparel Quality Evaluation	3	0	0	3	MS	40	60
26BSTX54	Elective – III	3	0	0	3	SEC	40	60
26BSTX55	Elective – IV	3	0	0	3	SEC	40	60
26BSTX56L	Textile and Apparel Quality Evaluation Laboratory	0	0	4	2	MS	60	40
26BSTX57L	Computer Aided Garment Design Laboratory	0	0	4	2	MC	60	40
26BSTX58L	Fashion Portfolio Laboratory	0	0	4	2	MC	60	40
26BSUG59I	Internship – II	0	0	0	3	SI	60	40
Total lecture/tutorial/practical hours		16	0	12				
Total credits		25						

SEMESTER VI								
COURSE CODE	COURSE NAME	L	T	P	C	CT	AM	
							CIA	ES E
26BSTX61	Textile Costing and ExIm management	3	0	0	3	MS	40	60
26BSTX62	Entrepreneurship Development	3	0	0	3	MS	40	60
26BSUG63	Value Added Course - I [#]	1	0	0	1	VAC	100	-
26BSUG64	Value Added Course - II [#]	1	0	0	1	VAC	100	-
26BSUG65S	Self-Interest Course [#]	0	0	0	1	VAC	100	-
26BSUG66P	Project Work	0	0	16	8	P	80	120
Total lecture/tutorial/practical hours		8	0	16				
Total Credits		17						
Total Cumulative credits excluding value added and self-interest courses		139						
Total Cumulative credits including value added and self-interest courses		146						

SEMESTER VII								
COURSE CODE	COURSE NAME	L	T	P	C	CT	AM	
							CIA	ESE
26BSTX71	Research Methodology And IPR	4	0	0	4	MC	40	60
26BSTX72	Industrial Management	3	0	0	3	MS	40	60
26BSTX73	New Product Development & Assessment	3	0	0	3	MC	40	60
26BSTX74	Advanced Functional And Smart Textiles	3	0	0	3	MC	40	60
26BSTX75	Advanced Apparel Engineering And Fit Technology	3	0	0	3	MC	40	60
26BSTX76	Clothing Comfort	3	0	0	3	MC	40	60
Total lecture/tutorial/practical hours		19	0	0				
Total Credits		19						
SEMESTER VIII (for students pursuing B.Sc (Hons.))								
COURSE CODE	COURSE NAME	L	T	P	C	CT	AM	
							CIA	ESE
26BSTX81	Total Quality Management for Textile & Apparel Industry	3	0	0	3	MS	40	60
26BSTX82	Business Analytics	3	0	0	3	MS	40	60
26BSTX83	Textile Product Design And Innovation Laboratory	0	0	4	2	MS	40	60

26BSUG84M	Mini Project	0	0	8	4	MC	80	120
Total Credits		0	0	12	12			
SEMESTER VIII (for students pursuing B.Sc (Hons. with Research))								
COURSE CODE	COURSE NAME	L	T	P	C	CT	AM	
							CIA	ESE
26BSUG81D	Dissertation	0	0	24	12	MC	80	120
Total Credits		0	0	24	12			
Total Cumulative credits, including value-added and self-interest courses		177						

- Those students opting for B.Sc (Hons. with Research) can pursue a full-time project with 12 credits

2. LIST OF ELECTIVES

Elective –Textiles

COURSE CODE	COURSE NAME	L	T	P	C	CT	AM	
							CI A	ESE
26BSTX34A	Home Textiles	3	0	0	3	MS	40	60
26BSTX45A	Technical Textiles	3	0	0	3	MS	40	60
26BSTX54A	Apparel Production Planning and Process Control	3	0	0	3	MS	40	60
26BSTX55A	Quality Assurance In Fabric And Apparel Production	3	0	0	3	MS	40	60

Elective – Fashion

COURSE CODE	COURSE NAME	L	T	P	C	CT	AM	
							CI A	ESE
26BSTX34B	Fashion Apparel Size and Fit Analysis	3	0	0	3	MS	40	60
26BSTX45B	Fashion Photography	3	0	0	3	MS	40	60
26BSTX54B	Clothing care and maintenance	3	0	0	3	MS	40	60
26BSTX55B	Visual merchandising	3	0	0	3	MS	40	60

3. List of Value Added Courses:

- Fashion Accessories
- Product Design and Development
- Visual Merchandising
- Intellectual Property Rights
- Digital Marketing
- Event Management

- LowCost Automation
- Internet of Things (IoT)

The courses may be offered as per the requirements of the industry and the choice of the students. The list may be updated as per the recent trends.

#VAC & Self-Interest courses to be completed within the sixth semester.

Mandatory for the award of the degree.

4. CREDIT FRAMEWORK/SUMMARY

S.No .	Course particulars	Semester wise credit split									Total Credits
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>8*</u>	
1	Major core	12	12	16	8	11	-	16	4	12*	79/87*
2	Minor stream	-	3	-	12	5	6	3	8	-	37/29*
3	Multi-Disciplinary	6	4	-	-	-	-	-	-	-	10
4	Ability Enhancement course	8	7	3	-	-	-	-	-	-	18
5	Skill Enhancement course	-	-	3	3	6	-	-	-	-	12
6	Value Added Course	-	-	-	4	-	3	-	-	-	7
7	Internship	-	-	3	-	3	-	-	-	-	6
8	Project work	-	-	-	-	-	8	-	-	-	8
	Total	26	26	25	27	25	17	19	12	12*	177/177*

*- for B.Sc. (Hons. with research)

SEMESTER – I

26BSUG11T

TAMIL - I

L	T	P	C
3	0	0	3

COURSE OBJECTIVES

1. To develop Tamil language competency through the study of literature and grammar.
2. To foster an appreciation of Tamil literary heritage, culture, and the evolution of major literary forms.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Interpret the themes, values, and literary contributions reflected in selected Tamil poems.	Understand
CO 2	Explain the moral, social, and cultural messages conveyed through Tamil short stories.	Understand
CO 3	Apply the rules of Tamil grammar related to the usage of consonants in written communication.	Apply
CO 4	Describe the origin and development of major Tamil literary forms such as poetry, short stories, novels, and drama.	Understand
CO 5	Analyze the characters, themes, and literary elements of Tamil dramas.	Analyze

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	S	M	M	-	M
2	S	M	S	-	M
3	-	-	-	-	S
M	M	-	-	-	M
5	M	M	M	M	M

அலகு - 1 (கவிதை)

1. பாரதியார் – பாரத நாடு
2. பாரதிதாசன் – பத்திரிக்கை
3. கண்ணதாசன் – காலக் கணிதம்
4. நாமக்கல் கவிஞர் – குடிப்பதை தடுப்போம்
5. அப்துல் ரகுமான் – ஆறாத அறிவு

அலகு – 2 (சிறுகதை)

1. அகிலன் – வெள்ளம் வந்தது
2. கா. நா. சுப்பிரமணியம் – சிட்டுக்குருவி
3. கு.அழகிரிசாமி – ராஜா வந்திருக்கிறார்
4. விந்தன் – சுயநலம்
5. கல்கி – ஸினிமாக் கதை
6. வைரமுத்து – மரங்களைப் பாடுவேன்

அலகு - 3 (இலக்கணம்)

1. வல்லெழுத்து மிகும் இடங்கள்
2. வல்லெழுத்து மிகா இடங்கள்

அலகு - 4 (இலக்கிய வரலாறு)

1. புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும்
2. சிறுகதையின் தோற்றமும் வளர்ச்சியும்
3. நாவலின் தோற்றமும் வளர்ச்சியும்
4. நாடகத்தின் தோற்றமும் வளர்ச்சியும்

அலகு - 5 (நாடகம்)

அகிலா நாடகங்கள் – மா. கமலவேலன்

குறிப்பு புத்தகம்:

1. தமிழ் இலக்கிய வரலாறு – முனைவர் கா.கோ.வேங்கட ராமன்
2. தீந்தமிழ் இலக்கணம் (க. வெள்ளிமலை எம்.ஏ.) – ஐவரி அச்சகம், சென்னை
3. சகோதரர் அன்றோ (அகிலனின் சிறுகதைத் தொகுப்பு) – தமிழ் எழுத்தாளர் கூட்டுறவு சங்கம்
4. பாரதி முதல் பிரபஞ்சன் வரை (தேர்ந்தெடுத்த சிறுகதைகள்) – அய்யா நிலையம் தஞ்சாவூர்
5. புதுமைப்பித்தன் முதல் இறையன்பு வரை (சிறுகதைத் தொகுப்பு) – நியூ செஞ்சுரி புக் ஹவுஸ்
6. தெய்வயானை (சிறுகதைத் தொகுப்பு) – கல்கி – கணியம் அறக்கட்டளை
7. அகிலா நாடகங்கள் – மா. கமலவேலன் – தாமரை பப்ளிகேஷன்ஸ், சென்னை

COURSE OBJECTIVES

1. To develop basic proficiency in Hindi language skills through the study of prose, non-detailed texts, translation, and comprehension exercises.
2. To enhance students' reading, writing, and communication abilities in Hindi while promoting an understanding of linguistic and cultural expressions.
3. To enable students to comprehend, interpret, and translate simple Hindi texts effectively for academic and practical purposes.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the importance of prose.	Understand
CO 2	Identify notable Hindi writers and explain the moral values conveyed through different stories.	Understand
CO 3	Translate Hindi text into English.	Apply
CO 4	Interpret passages using comprehension skills for competitive examinations.	Understand
CO 5	Demonstrate effective listening comprehension and oral communication skills.	Apply

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	M	-	-	-	M
2	S	M	S	-	M
3	-	-	-	-	S
4	M	M	-	-	M
5	-	-	-	M	S

UNIT I

Prose: 1. Meri vasiyath, 2. Kadhamba ke phool, 3. bathcheeth mem shistachar

UNIT II

Non-Detailed: 1. Pareeksha, 2. Takur ka kuwa, 3. Trishanku bechara

UNIT III

Bahuyuktha hindi padnam

UNIT IV

Translation: Hindi to English only (1 – 10 Lessons only).

UNIT V

Comprehension: 15 - 30 Lessons only.

TEXT BOOKS:

1. Gadhya Manjusha-editor, Govind. M. A., Amar Prakashan, Mathura, (U.P).
2. Hindi Gadhya Prabhakar, Editor: Dr. Hiranmaya, Publisher: Siksha Bharathy, Kashmiri Gate, New Delhi – 110006.
3. Madhyamic Gadhya sankalan – Editor: Shrimathi Kamala Shankar, Publisher: Lokbharathi Prakashan, 15-A, Mahathma Gandhi Marg, Allahabad – 1.
4. Kahani Kunj, Editor: Dr. V. P. Amithab, Publisher: Govind Prakashan, Sadar Bazaar, Mathura, U. P. – 281 001.
5. Premchand ki shreshtha Kahaniyan by Kumar Krishnan, Publisher: Vani Prakashan, 21-A, Dariya ganj, New Delhi – 110002.
6. Gadhya Prasang by Dr. Sathya Prakash, Publisher: Sumithra Prakashan, 16/4, Hastings Road, Allahabad - 1
7. Vyavaharic Hindi by Sayed Rahamadulla (Page: 90-91).
8. Anuvad Abhyas – Part III by D.B.H.P. Sabha, Chennai - 17

COURSE OBJECTIVES

1. To develop students' proficiency in English communication skills, including listening, speaking, reading, and writing, for academic, professional, and social contexts.
2. To enhance students' grammatical competence and language accuracy for effective oral and written communication.
3. To equip students with practical communication skills such as conversation, interviews, telephonic etiquette, comprehension, and professional writing required for higher education and the workplace.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Demonstrate the use of a wide range of English language functions.	Apply
CO 2	Develop effective oral and written communication skills.	Apply
CO 3	Apply language functions in real-life situations.	Apply
CO 4	Demonstrate communicative competence and effective language performance.	Apply
CO 5	Analyze literary texts by identifying key themes, styles, and cultural contexts.	Analyse

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	M	-	-	M	S
2	-	-	-	M	S
3	M	M	-	M	S
4	-	-	M	M	S
5	M	M	M	-	S

UNIT I: Functions of English

Use of English in media, business and technology – Social functions: Conversational English Greeting, introducing, requesting, inviting, congratulating, thanking, apologizing, advice, suggestions, opinions, permission, sympathy, asking to repeat, complaining, understanding and being understood, agreement, preference, asking for information, changing the topic.

UNIT II: Oral Communication

Face to face communication – Telephonic conversation: Skills and etiquette – Interview skills – Instruction – Dictation.

UNIT III: Remedial Grammar

Subject verb agreement – Tenses – Transformation of sentence – Auxiliary verbs – Linkers.

UNIT IV: Listening and Reading

Academic listening; Listening to talks and descriptions; Listening to Announcements; Listening to Media news; Listening to casual conversations – Intensive reading, extensive reading, skimming, scanning, literary reading, non-literary reading

UNIT V: Written Communication

Email – letter writing - report writing – note taking – sentence construction (patterns)

TEXT BOOKS:

1. Syamala V. Effective English Communication for you, Emerald Publishers, Chennai, 2005. ISBN: 81-7966-002-8.
2. Mr. Mohan, Mr. Krishna and Ms. Meera Banerji, Developing Communication Skills, Macmillan, New Delhi, 2007. ISBN: 978-0333-92919-3.
3. Mr. Dutt, Mr. P. Kiranmai, Ms. Geetha Rajeevan and Mr. C.L.N. Prakash, A Course in Communication Skills, Cambridge University Press, New Delhi, 2007. ISBN: 978-81-7596-5362

COURSE OBJECTIVES

1. To provide fundamental knowledge of colour chemistry, surfactants, polymers, and their applications in textile materials and processes.
2. To develop an understanding of the chemical and physical principles governing the properties of textile-related materials, including oils, fats, polymers, surface tension, viscosity, and elasticity.
3. To enable students to apply scientific concepts and analytical methods for understanding the behaviour and performance of textile materials in industrial and engineering applications.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the chemistry, classification, and applications of textile dyes.	Understand
CO 2	Describe the properties of oils, fats, and surfactants used in textile processing.	Understand
CO 3	Explain polymerization mechanisms and the synthesis of important textile polymers.	Understand
CO 4	Apply principles of elasticity and beam bending to textile applications.	Apply
CO 5	Analyze surface tension and viscosity phenomena relevant to textile processing.	Analyse

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	S	M	M	-	M
2	S	S	M	-	M
3	S	M	M	-	M
4	S	M	-	-	M
5	S	S	-	-	M

UNIT I

Colour and Chemical Constitution: Colour and constitution - theory of colours. Classification of dyes based on structure, according to application and mode of dyeing. Chemistry of azo dyes, selective examples and its usage in clothing textile.

UNIT II

Chemical analysis of oils and fats: Acid value, saponification and iodine values, viscosity, viscosity index, flash and fire points. Surfactants: Classification and chemistry of surfactants-application of surfactants in textiles.

UNIT III

Polymers: Introduction – Classification – Types and mechanism of polymerization – Degree of Polymerization. Synthesis of some selective polymers: Polyethylene (LDPE & HDPE), Polyacrylonitrile, Polyesters (PET), Polyamides – Nylon 6 and Nylon 6, 6.

UNIT IV

Elasticity: Modulus of elasticity – Poisson's ratio – Relation between elastic constants and Poisson's ratio – Torsional pendulum (with and without weights) – Bending of beams – Bending moment – Cantilever loading – Transverse vibrations of cantilever – Non uniform and uniform bending of a beam.

UNIT V

Surface Tension and Viscosity: Molecular interpretation – Surface energy – Molecular force – Shape of liquid meniscus in capillary tube – Angle of contact – Capillary rise and energy consideration. Newton's law – Poiseuille's flow – Stoke's fall – Rotation viscometer – Ostwald viscometer. Effect of temperature and pressure on viscosity.

TEXT BOOKS:

1. Mathur D S, "Elements of Properties of matter", S Chand Limited, 2008.
2. Brijlal & Subhramanyam N, "Properties of matter", S Chand & Co., New Delhi, 2003.
3. Soni P L & Chawla H M, "Text book of Organic Chemistry", S Chand & Co., New Delhi, 2012.
4. B.K.Sharma, "Industrial chemistry", Krishna Prakashan Media (P) Ltd, Meerut, 2011.

REFERENCES:

1. Gulati H R, "Fundamental of General properties of matter", R Chand & Co., 1982.
2. White F. M, "Fluid Mechanics", Tata McGraw-Hill, 5th edition, New Delhi, 2017.
3. K.S. Tiwari, N.K. Vishnoi, S.N. Mehrotra, "A Text Book of Organic Chemistry", Vikas Publishing House, 4th Ed., New Delhi, 2017.
4. Shore J. "Colourants and Auxiliaries: Volume II Auxiliaries", Wood head Publishing Ltd., 2002.

COURSE OBJECTIVES

1. To provide fundamental knowledge of fashion, fashion terminology, design elements, and principles used in apparel and textile products.
2. To develop an understanding of colour concepts, colour schemes, and their application in fashion and textile design.
3. To familiarize students with fashion trends, forecasting techniques, and the role of designers in the global fashion industry.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the evolution, concepts, terminology, and principles of fashion.	Understand
CO 2	Describe the elements and principles of design used in fashion and apparel products.	Understand
CO 3	Apply colour theories, colour schemes, and colour selection principles for different occasions and seasons.	Apply
CO 4	Analyze fashion trends, fashion cycles, and factors influencing fashion changes.	Analyse
CO 5	Explain fashion forecasting techniques and evaluate the contributions of leading Indian and international fashion designers.	Understand

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	M	M	-	-	M
2	S	M	-	-	M
3	S	M	-	-	M
4	M	S	-	-	M
5	M	S	M	-	S

UNIT I

Introduction to fashion: Definition – origin and history of Indian fashion – principles of fashion. Terms related to the fashion: style, fad, classic, collection, chic, costume made, mannequin, fashion-show, trend, forecasting, high fashion, fashion cycle, haute couture, couture, couturier, fashion direction, fashion editor, line, knock-off, avant- grade, bridge, buying house, apparel, pret– a–porter and sample.

UNIT II

Types of design: Definition – structural, decorative and ornamental design. Requirements of a good structural and decorative design. Elements of design: Definition – types- Dot, Line, form, shape, texture and colour.

UNIT III

Principles of Design: Definition- Harmony: line, shape, colour, texture and idea – Balance: Symmetrical, Asymmetrical and radial – Rhythm: Repetition, progression, transition, radiation and continuous line movement – Emphasis – Proportion or scale.

UNIT IV

Colour – Definition, elements of colour, hue, value and intensity, classification of colour: primary, secondary and tertiary. Colour theory: Prang and Munsell colour chart – colour schemes, important colour qualities, selection of colour for various occasion and seasons.

UNIT V

Fashion trends: Fashion evolution – fashion cycles – trend analysis – techniques. Fashion forecasting: Types – factors influencing fashion changes. Role of fashion designers. Top 10 Indian and International designers (self-study).

TEXT BOOKS:

1. Sumathi, G. J. (2007). Elements of Fashion and Apparel Design. Reprint. New Delhi: New Age International Publisher Limited.
2. McKelvey, Kathryn and Munslow, Janine. (2011). Fashion Design: Process, Innovation and Practice. 2nd Edition. John Wiley and Sons.
3. Frings, Gini Stephan. (2007). Fashion from concept to consumer. 9th Edition. Pearson Education.

REFERENCES:

1. Davis, Jenny. (2006). A Complete Guide to Fashion Designing. 1st Edition. Chandigarh: Abhishek Publications.
2. Mahadevan, M. G. (2008). Textile colouring. 1st Edition. Chandigarh: Abhishek Publication.
3. Steele, Valerie. (2005). Encyclopedia of Clothing and Fashion. Charles Scibner's and Sons.
4. Hopkins, John. (2012). Fashion Design: The Complete Guide. Vol 36. A and C Black Publishers.
5. Mullick, Premlata. (2006). Textbook of Textile Designing. 1st Edition. Ludhiana: Kalyani Publishers.
6. Parachure, J. W. (2009). Fundamentals of Designing for Textiles and Other End Use. New Delhi, India: Woodhead Publishing.
7. Riegelman, Nancy. (2006). Colour for Modern Fashion: Drawing Fashion with Coloured Markers. 1st Edition. Nine Heads Media Publication.

COURSE OBJECTIVES

1. To provide fundamental knowledge of textile fibres, yarns, and their classification, properties, manufacturing processes, and applications.
2. To develop an understanding of fibre formation, yarn production systems, yarn characteristics, and blending techniques used in the textile industry.
3. To familiarize students with sewing threads, fancy yarns, and modern spinning technologies employed in contemporary textile manufacturing.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the classification, properties, identification methods, and applications of textile fibres.	Understand
CO 2	Describe the manufacturing processes and properties of regenerated and synthetic fibres.	Understand
CO 3	Explain yarn manufacturing processes, yarn numbering systems, and blending techniques.	Understand
CO 4	Illustrate the production and applications of double yarns, sewing threads, and winding systems.	Understand
CO 5	Analyze fancy yarns and modern spinning technologies based on their structure, principles, and end-use properties.	Analyse

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	S	M	-	-	M
2	S	M	-	-	M
3	S	M	-	-	M
4	M	M	-	-	M
5	S	S	M	-	M

UNIT I

Fibre: Introduction - essential and desirable fibre properties - classification of fibres. Fibre identification. Applications of textiles fibres. Natural fibre: Introduction - source, morphological structure, properties and end uses of Cotton, Silk and Wool.

UNIT II

Regenerated fibre: Introduction - manufacturing sequence and properties of Viscose Rayon. Synthetic fibre: Introduction to polymer – types of polymer and polymerization. Manufacturing process and properties - Polyester, Nylon and Acrylic fibres. Methods of filament spinning – dry, wet and melt spinning

UNIT III

Yarn: Introduction - staple spinning system – cotton yarn production process sequence (blow room to ring spinning). Study of yarn twist and its importance. Direct and indirect yarn numbering systems, conversion factors. Blended yarn: Types of blending – benefits of blending

UNIT IV

Double yarn: Properties – uses. Classification of sewing threads – essential properties - production process of spun polyester sewing thread. Winding: Introduction – types (cone and cheese) – yarn and package defects.

UNIT V

Fancy yarns: Introduction - texturized yarn, core spun, cover spun. - chenille, slub, nep, snarl, spiral, loop, marl, gimp and chainette. Modern spinning systems: Principles of production and yarn properties of Rotor, Air-Jet, and Friction.

TEXT BOOKS:

1. Mishra, S. P. (2000). A Text Book of Fibre Science and Technology. New Delhi: New Age International Pvt. Ltd.
2. Corbman, Bernard. P.(2000). Textiles: Fibre to Fabric, 6th edition. Singapore: International students Edition McGraw Hill Book.

REFERENCES:

1. Wynne, A. (1997). The Motivate Series – Textiles. London: Macmillan Education Ltd.
2. Chellamani, K. P. Yarns and Technical Textiles. Coimbatore: Kalai Kathir Achagam.
3. Pal Sing, K. V. (2004). Introduction to Textiles. New Delhi: Kalyani publishers.
4. Sekhri, Seema. (2011). Textbook of Fabric Science. New Delhi: PHI Learning Private Limited.

COURSE OBJECTIVES

1. To introduce students to the fundamentals of Indian Knowledge Systems and India's contributions to science, technology, culture, and society.
2. To familiarize students with India's traditional textile knowledge, indigenous technologies, and sustainable practices relevant to the textile and apparel sector.
3. To develop an appreciation for Indian ethical values, sustainability, and the application of indigenous knowledge in professional practice.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the fundamental concepts and evolution of Indian Knowledge Systems.	Understand
CO 2	Describe selected contributions of India to science, technology, and sustainable development.	Understand
CO 3	Explain India's traditional textile heritage, indigenous fibres, handloom traditions, and natural dyeing practices.	Understand
CO 4	Relate traditional knowledge and sustainable practices to modern textile and apparel industries.	Apply
CO 5	Demonstrate awareness of Indian values, ethics, and traditional knowledge for responsible professional practice.	Apply

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	S	M	M	-	M
2	M	S	-	-	M
3	S	S	M	-	M
4	M	S	M	M	M
5	M	M	S	S	M

UNIT I: Introduction to Indian Knowledge Systems

Concept, scope, and significance of Indian Knowledge Systems; evolution of knowledge traditions in India; major sources of Indian knowledge including the Vedas, Upanishads, Itihasas, Puranas, and Sangam literature; ancient centres of learning; relevance of Indian Knowledge Systems in higher education and contemporary society.

UNIT II: Indian Science, Technology, and Sustainable Knowledge

Overview of India's contributions to mathematics, astronomy, metallurgy, medicine, agriculture, and architecture; traditional water management and environmental conservation practices; Ayurveda and Yoga as knowledge systems; principles of sustainable living in Indian traditions.

UNIT III: Indian Textile Heritage and Traditional Technologies

Evolution of Indian textiles; traditional fibre resources; indigenous spinning and weaving systems;

handloom traditions and major textile clusters; Khadi and the Swadeshi movement; natural dyes, traditional textile crafts, and Geographical Indication (GI) textiles of India.

UNIT IV: Indigenous Knowledge for Sustainable Textile Practices

Traditional sustainable textile production; eco-friendly fibre processing; natural dyeing and herbal finishing; resource conservation, recycling, and circular economy practices in Indian textiles; role of artisans and village industries in sustainable development.

UNIT V: Indian Values, Ethics, and Contemporary Relevance

Indian ethical values and professional conduct; leadership principles from the Bhagavad Gita and Thirukkural; protection of traditional knowledge through Intellectual Property Rights (IPR) and Geographical Indications (GI); Government initiatives promoting Indian Knowledge Systems; relevance of indigenous knowledge for innovation and entrepreneurship in the textile sector.

REFERENCES

1. Government of India, Ministry of Education. (2020). *National Education Policy 2020*. Government of India.
2. Mahadevan, B., Bhat, V. R., & Pavana, R. N. (2024). *Introduction to Indian knowledge system: Concepts and applications*. PHI Learning Pvt. Ltd.
3. University Grants Commission. (2026). *Guidelines for incorporating Indian Knowledge in higher education curricula*. University Grants Commission.
4. University Grants Commission. (2022). *Guidelines for training/orientation of faculty on Indian Knowledge Systems*. University Grants Commission.
5. Coomaraswamy, A. K. (2013). *The arts and crafts of India and Ceylon*. Dover Publications. (Original work published 1913)
6. Dhamija, J. (2004). *Handwoven fabrics of India*. Aryan Books International.
7. Chishti, R. K. (2010). *Saris: Tradition and beyond*. Roli Books.
8. Government of India, Ministry of Textiles. (2023). *Handloom and handicrafts of India*. Ministry of Textiles.

COURSE OBJECTIVES

1. To develop fundamental drawing and sketching skills through the practice of freehand drawing, object drawing, perspective drawing, and still-life compositions.
2. To enhance students' understanding of design elements, colour concepts, shading techniques, and texture rendering used in art and textile design.
3. To foster creativity, observation, and visual communication skills through artistic exploration and design exercises.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Demonstrate freehand sketching, pencil shading techniques, and color theory concepts using Prang and Munsell color systems for effective fashion illustrations.	Apply
CO 2	Utilize various shading techniques and grid methods to produce accurate and visually appealing drawings.	Apply
CO 3	Apply colour concepts such as hue, value, intensity, and colour wheel principles in artistic compositions.	Apply
CO 4	Render a variety of fabric textures and garment details, including skirts, pants, waistbands, pockets, sleeves, cuffs, necklines, yokes, and collars.	Apply
CO 5	Create complete fashion illustrations by integrating garments, accessories, colors, textures, and design elements to communicate apparel concepts effectively	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	M	-	-	-	M
2	S	-	-	-	M
3	S	M	-	-	M
4	M	M	-	-	M
5	M	S	M	M	S

LIST OF EXPERIMENTS:

1. Free hand sketching
2. Pencil Shading techniques
3. Colour wheels: Prang colour chart & Munsell, Value & Intensity Chart
4. Art of fabric Texture Rendering
5. Development of stick figure to flesh figure of female and male – 8 Head
6. Different growth stages of male and female
7. Illustrate Facial features – Eyes, Nose, Lips & Ears

8. Illustrate different men's and women's face shapes – front and side face with feature
9. Illustrate different hand and leg poses – Male & Female
10. Illustration of different hair styles
11. Illustration of different styles of skirts, pants, waist band and pocket
12. Illustration of different styles of sleeves, cuff, neckline, yoke, collars
13. Illustration of different kinds of accessories and design

REFERENCES:

1. Abling, Bina. (2012). Fashion Sketchbook. 6th Edition. New York: Fairchild Book Publications.
2. Davis, Marian. L. (1996). Visual Design in Dress. 3rd Edition. New Jersey: Prentice Hall Inc.
3. Morris, Bethan. (2006). Fashion Illustrator, New Delhi: Laurence King Publishing.
4. Ireland, Patrick John. (1996). Fashion Design Illustration: Men. UK: Pavilion Books.
5. Ireland, Patrick John. (2003). Fashion Design Drawing and Presentation. Batsford Publishers.
6. Wayne, Childy. (2009). Essential Fashion Illustration: Men. Beverly, Massachusetts: Rockport Publishers.
7. Eissen, K., & Steur, R. (2011). Sketching: Drawing techniques for product designers. BIS Publishers.
8. Travis, S. (2015). Sketching for architecture + interior design. Laurence King Publishing.
9. Robertson, S., & Bertling, T. (2013). How to draw: Drawing and sketching objects and environments from your imagination. Design Studio Press.
10. Ware, C. (2008). Visual thinking for design. Morgan Kaufmann Publishers.

COURSE OBJECTIVES

1. To provide hands-on experience in performing fundamental physics and chemistry experiments related to material properties and analytical techniques.
2. To develop practical skills in measurement, observation, experimentation, and interpretation of scientific data.
3. To enable students to apply theoretical concepts of physics and chemistry in laboratory investigations relevant to science and engineering applications.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Perform experiments to determine the mechanical and surface properties of materials using standard physics laboratory techniques.	Apply
CO 2	Determine physical parameters such as Young's modulus, surface tension, interfacial tension, and radius of curvature through experimental methods.	Apply
CO 3	Identify the nature, special elements, and functional groups present in organic compounds through qualitative analysis.	Apply
CO 4	Conduct quantitative chemical analyses for the estimation of sodium hydroxide, oxalic acid, and water hardness.	Apply
CO 5	Analyze experimental observations and results to draw valid scientific conclusions.	Analyse

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	S	M	-	-	M
2	S	M	-	-	M
3	S	M	M	-	M
4	S	M	-	-	M
5	M	M	S	M	S

LIST OF EXPERIMENTS:**Physics:**

1. Young's Modulus – Non-uniform bending – Pin and microscope
2. Surface tension – Capillary rise method
3. Surface tension and interfacial surface tension – Drop weight method
4. Newton's rings – Radius of curvature of the given lens

Chemistry:

1. Qualitative analysis of organic compounds: (Any 3 substances)

Determination of aromatic / aliphatic, saturated / unsaturated, presence of special elements (Nitrogen, Sulphur, Halogens), presence of functional groups of the following compounds:

- a. Carbohydrates
- b. Phenol
- c. Aniline
- d. Aldehydes
- e. Carboxylic acids

2. Quantitative analysis:

- a. Estimation of Sodium hydroxide,
- b. Estimation of Oxalic acid
- c. Estimation of Hardness.

REFERENCES:

1. Thomas, A. O. (2009). Practical Chemistry. Kannur: Scientific Book Centre.
2. Venkateswaran, V., Veeraswamy, R. & Kulandaivelu, A. R. (2015). Basic Principles of Practical Chemistry. New Delhi: S Chand & Sons.

COURSE OBJECTIVES

1. To provide practical knowledge of fibre and yarn testing techniques used in textile quality evaluation.
2. To develop laboratory skills in identifying textile fibres and determining their physical properties and performance characteristics.
3. To enable students to analyze and interpret fibre and yarn test results for quality control and textile manufacturing applications.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Identify textile fibres using microscopic examination, feel, solubility, and burning tests.	Apply
CO 2	Determine the physical characteristics of fibres, including fineness, length, and moisture regain.	Apply
CO 3	Measure the linear density of slivers, rovings, and yarns using standard testing methods.	Apply
CO 4	Evaluate yarn properties such as twist, strength, and appearance through laboratory testing.	Apply
CO 5	Interpret test results to assess the quality and performance of textile fibres and yarns.	Analyse

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	S	M	-	-	M
2	S	M	-	-	M
3	S	M	-	-	M
4	S	M	M	-	M
5	M	S	M	-	S

LIST OF EXPERIMENTS

1. Fibre identification by microscopy.
2. Fibre identification by burning test.
3. Fibre identification by solubility test.
4. Fibre fineness determination.
5. Fibre length determination.
6. Fibre moisture content and regain determination.
7. Sliver linear density determination.
8. Roving linear density determination.

9. Yarn count determination.
10. Yarn twist determination.
11. Yarn strength (single yarn and lea) determination.
12. Yarn evenness and appearance assessment.

REFERENCES:

1. Mishra, S. P. (2000). A Text Book of Fibre Science and Technology. New Delhi: New Age International Pvt. Ltd.
2. Corbman, B. P. (2000). Textiles: Fibre to Fabric. Singapore: International students Edition McGraw Hill Book Company.

SEMESTER II

26BSUG21T

TAMIL – II

L	T	P	C
3	0	0	3

COURSE OBJECTIVES

1. To provide practical knowledge of fibre and yarn testing techniques used in textile quality evaluation.
2. To develop laboratory skills in identifying textile fibres and determining their physical properties and performance characteristics.
3. To enable students to analyze and interpret fibre and yarn test results for quality control and textile manufacturing applications.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the ethical values, educational principles, and social virtues presented in Tamil didactic literature.	Understand
CO 2	Interpret the spiritual, moral, and religious messages conveyed through Tamil devotional literature.	Understand
CO 3	Apply the grammatical concepts and literary conventions presented in <i>Nannool</i> for effective language usage.	Apply
CO 4	Describe the cultural, social, and communication-related concepts discussed in the prescribed prose texts.	Understand
CO 5	Analyze the themes, characters, and social issues portrayed in the novel <i>Panjum Pasiyum</i> .	Analyse

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	S	M	S	-	M
2	M	M	M	-	S
3	-	-	-	-	S
4	S	S	M	-	M
5	S	M	S	M	S

அலகு - 1 (செய்யுள் - அற இலக்கியம்)

1. திருக்குறள் – இனியவை கூறல் (அதிகாரம்)
2. நாலடியார்
 - i. கல்வி (131 முதல் 135 வரை)
 - ii. நட்பாராய்தல் (216 முதல் 220 வரை)
3. மூதுரை என்னும் வாக்குண்டாம் – (முதல் 10 பாடல்கள்)
 1. திருஞான சம்பந்தர் தேவாரம் – கோளறு திருப்பதிகம் (முதல் 5 பாடல்கள்)

2. ஆண்டாள் – திருப்பாவை (முதல் 5 பாடல்கள்)
3. இயேசு காவியம் – பாரச் சிலுவை (8 பாடல்கள்)
4. சீறாப்புராணம் – கடவுள் வாழ்த்து (5 பாடல்கள்)

அலகு – 2 (செய்யுள்- பக்தி இலக்கியம்)

அலகு – 3 - இலக்கணம்

பவணந்தி முனிவர் - நன்னூல் - எழுத்து - மாணாக்கனது வரலாறு பாடங் கேட்டலின் வரலாறு

அலகு – 4 (உரைநடை)

1. சங்க நெறிகள் – வ.சுப.மாணிக்கம்
2. தமிழர் உடை – தொ. பரமசிவன்
3. அக்னிச் சிறகுகள் (அத்தியாயம் 1) – முனைவர். ஏ.பி.ஜே. அப்துல் கலாம்
4. அன்பிற் சிறந்த தவமில்லை – தமிழருவி மணியன்
5. தகவல் தொடர்பில் ஊடகங்களின் பங்கு மற்றும் ஊடகங்களின் வகைகள் - டாக்டர்.த.ரெஜித்குமார்

அலகு – 5 (நாவல்)

பஞ்சம் பசியும் – தொ.மு.சி. ரகுநாதன்

குறிப்பு புத்தகம்:

1. அற இலக்கியங்கள் , பக்தி இலக்கியங்கள்
2. பவணந்தி முனிவர் – நன்னூல்
3. சங்க நெறி கற்போம் – வ.சுப.மாணிக்கம் – மணிவாசகர் பதிப்பகம்
4. பண்பாட்டு அசைவுகள் – தொ. பரமசிவன் காலச்சுவடு பதிப்பகம்
5. அக்னிச் சிறகுகள் (அத்தியாயம் 1) - முனைவர் ஏ.பி.ஜே. அப்துல் கலாம்
6. அன்பிற் சிறந்த தவமில்லை – தமிழருவி மணியன் – கற்பகம் புத்தகாலயம்
7. ஊடகவியல் – டாக்டர்.த.ரெஜித்குமார் – நியூ செஞ்சுரி புக் ஹவுஸ்

COURSE OBJECTIVES

1. To develop proficiency in Hindi language through the study of prose, short stories, grammar, vocabulary, and letter writing.
2. To enhance students' reading, writing, comprehension, and communication skills in Hindi for academic and professional purposes.
3. To enable students to apply grammatical rules and effective written communication techniques in real-life situations.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Interpret the themes, values, and messages conveyed through the prescribed Hindi prose lessons.	Understand
CO 2	Explain the moral and social significance of the prescribed Hindi short stories.	Understand
CO 3	Apply Hindi grammatical rules accurately in sentence construction and language usage.	Understand
CO 4	Use appropriate vocabulary, including one-word substitutions and antonyms, in written and oral communication.	Apply
CO 5	Compose formal letters for academic, professional, and personal communication purposes in Hindi.	Apply

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	S	M	M	-	M
2	-	-	-	-	S
3	-	-	-	-	S
4	M	-	-	M	S
5	M	-	M	M	S

UNIT I

1. Sawal, 2. Jeevan ki theen pradhan bathem, 3. Do Chere.

UNIT II

- Lagu Kathayem: 1. Fees, 2. Risthe, 3. Kelne ke din, 4. Kamra

UNIT III

- Applied Grammar: 1. Line Badaliye, 2. Vachan Badaliye, 3. Vachya Badaliye, 4. Ulte arthavale shabda likiye, 5. Karak cinhom se bariye, 6. Vakyom mem prayog kijiye, 7. Kaal Badaliye, 8. Shudda kijiye.

UNIT IV

Vakya ke liye ek Shabda (one word for one sentence).

UNIT V

Letter Writing: 1. Leave letter, 2. About a tour from the college, 3. About a function celebrated in the college, 4. Applying for the job, 5. Ordering for the books.

TEXT BOOKS:

1. Hindi Gadhya Prabakar, Editor: Dr. Hiranmay, Publisher: Shiksha Bharathy, Kashmiri Gate, New Delhi – 6
2. Bharathi Gadhya Sangrah by Vani Prakashan, New Delhi.
3. From Laghu Katha.com.
4. Sugam Hindi Vyakaran, Siksha Bharathi Madarsa Road, Kashmiri Gate, New Delhi.
5. Abhinav Pathra Lekhan by D.B.H. Prachar Sabha, Chennai – 17.

COURSE OBJECTIVES

1. To develop students' proficiency in spoken and written English for academic, technical, and professional communication.
2. To enhance students' skills in preparing technical documents, reports, proposals, presentations, and business communications.
3. To equip students with career-oriented communication skills, including résumé writing, interview performance, group discussions, and professional etiquette.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Demonstrate effective pronunciation, stress, rhythm, and intonation patterns in spoken English.	Apply
CO 2	Prepare technical proposals by applying appropriate formats, contents, and evaluation criteria.	Apply
CO 3	Compose formal reports using standard report-writing conventions and relevant technical vocabulary.	Apply
CO 4	Apply English language skills for business communication, presentations, competitive examinations, and professional documentation.	Apply
CO 5	Develop career-oriented communication skills through curriculum vitae preparation, cover letter writing, group discussions, and mock interviews.	Apply

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	-	-	-	M	S
2	M	M	M	-	S
3	M	M	M	-	S
4	M	M	M	M	S
5	M	-	S	S	S

UNIT I: Applied Phonetics

The phonological system in English – speech sounds – stress, rhythm – strong and weak forms – pitch and intonation

UNIT II: Technical Proposals

Definition and key factors – types – contents – format - evaluation

UNIT III: Formal reports

Definition – preparatory steps – types – structure – textile vocabulary

UNIT IV: English for specific purpose

Business communication – competitive examinations (TOEFL etc.) – paper presentations – description and demonstration, advertisement – notices, agenda and minutes

UNIT V: Career skills

Curriculum vitae and cover letters – soft skills – mock interviews – group discussion – personality traits

TEXT BOOKS:

1. Raman, Meenakshi and Sharma, Sangeetha – Technical Communication Principles and Practice, Oxford Univeristy Press: New Delhi, 2014
2. Means, L Thomas and Elaine Langlois, English & Communication for Colleges, Cengage Learning, USA: 2007

COURSE OBJECTIVES

1. To provide fundamental knowledge of statistical methods used for data collection, organization, presentation, and analysis.
2. To develop students' ability to apply statistical tools for measuring central tendency, dispersion, correlation, and regression.
3. To enable students to interpret statistical results and use them for decision-making in scientific, industrial, and research applications.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Organize and present data using frequency distributions, diagrams, and graphical methods.	Apply
CO 2	Calculate and interpret measures of central tendency such as mean, median, mode, geometric mean, and harmonic mean.	Apply
CO 3	Analyze data using measures of dispersion and assess variability through standard statistical measures.	Analyse
CO 4	Determine and interpret the relationship between variables using correlation techniques.	Analyse
CO 5	Apply regression analysis methods to estimate relationships and make predictions based on data.	Apply

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	S	M	-	-	M
2	S	M	-	-	M
3	S	S	-	-	M
4	S	M	-	-	M
5	S	S	-	-	M

UNIT I

Presentation of data by diagrammatic and graphical method - Formation of frequency distribution. Probability – Concept, Bayes' theorem

UNIT II

Measures of central tendency - Arithmetic mean, median, mode, geometric and harmonic mean, Empirical Relation. (simple problems only)

UNIT III

Measures of Dispersion - Different methods of calculation of Range, Quartile deviation, Mean Deviation, Standard deviation, Coefficient of Variation – Relationship between measures of variation (simple problems only)

UNIT IV

Simple correlation - Scatter diagram - Karl Pearson's Co-efficient of correlation – Rank correlation

UNIT V

Regression – Simple and multiple regression analysis - Regression lines

“Note: Theory and problem shall be distributed at 20% and 80% respectively.”

TEXT BOOKS:

1. Das N G, “Statistical Methods”, McGraw Hill Education, 1st Edition, 2008.
2. Goon A M, Gupta M K & Das Gupta B, “Fundamentals of Statistics” Vol I & II, The World Press P Ltd., 1968.
3. Miller & Freuntz, “Probability & Statistics for Engineers”, Prentice Hall of India, 8th Edition, 2010.
4. Gupta S.C. and Kapoor V.K., *Fundamentals of Mathematical Statistics* – Sultan Chand & Sons, 2011
5. Vittal.P.R.(2016), *Mathematical Statistics*(2016th ed), Maragatham Publishers

REFERENCES:

1. Gupta S P, “Statistical Methods” S Chand & Sons, New Delhi, 44th Edition, 2014
2. Pillai R S N & Mrs. Bagavathi, “Statistics – Theory & Practice”, S Chand Publishing, 7th Edition, 1984.
3. Leaf G A V, “Practical Statistics for the Textile Industry” Part I and II, Cornell University, 2009.

COURSE OBJECTIVES

1. To provide comprehensive knowledge of fabric manufacturing technologies, including weaving, knitting, nonwoven, and braiding processes.
2. To develop an understanding of machine mechanisms, fabric formation principles, and process parameters involved in textile production.
3. To enable students to analyze fabric manufacturing systems and evaluate their suitability for different textile applications.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the principles, machinery, and process sequence involved in weaving preparatory operations and conventional weaving.	Understand
CO 2	Analyze the working principles of patterning mechanisms, shuttleless looms, fabric defects, and corrective measures.	Analyse
CO 3	Describe weft knitting machine elements, knitting terminology, knitting cycles, and fabric formation processes.	Understand
CO 4	Explain warp knitting mechanisms, machine components, lapping movements, and yarn paths in tricot and raschel machines.	Understand
CO 5	Compare nonwoven and braiding technologies with conventional fabric manufacturing methods and evaluate their applications.	Analyse

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	S	M	-	-	M
2	S	S	M	-	M
3	S	M	-	-	M
4	S	M	-	-	M
5	S	S	M	-	M

UNIT I

Weaving preparatory process:– High speed cone winding machine - Pirn winding. Warping - warping machine – sectional warping machine. Sizing - ingredients – sizing machine. Drawing in – denting. **Conventional Weaving:** Introduction – primary, secondary and auxiliary motions - passage of yarn – Handloom - Power Loom. Selvedges – types.

UNIT II

Patterning mechanisms: Lifting mechanism principles – Tappet, Dobby (Climax, Staubli) and Jacquard. Drop Box.

Shuttleless Loom: Introduction - weft inserting cycle - Projectile, Rapier, Air Jet, Water Jet - Multiphase weaving - Fabric defects, causes and remedies.

UNIT III

Weft knitting: Comparison of weaving and knitting, weft and warp knitting – weft knitting classification - circular, flat, V-bed. Elements of weft knitting - needles, and their types, sinkers, jacks, cams, cylinder, feeder and take-up, their function and operation. Knitting terminologies - open loop, closed loop, course, wale, stitch density and loop length. knitting cycle and yarn path of single and double jersey

UNIT IV

Warp Knitting: Classification - Tricot and Raschel knitting machines, Mechanical elements of warp knitting. Needle bar, sinker bar, guide bar, warp beams, pattern wheel, chain links, knitting cycle for spring bearded and latch needles, yarn path in Tricot and Raschel machines, lapping diagrams and notations.

UNIT V

Nonwoven: Introduction – classification. Web formation – dry (parallel, cross, random), wet and polymer laid. Web bonding – mechanical, chemical and thermal. Properties and applications. Braiding - flat and circular braiding machines – properties and applications.

TEXT BOOKS:

1. Talukdar, M. K. (1982). An Introduction to Winding and Warping. Mumbai: Textile Trade Press.
2. Anbumani N, “Knitting-Fundamentals, Machines, Structures and Developments”, New Age International (P) Ltd., New Delhi, 2007.

REFERENCES:

1. Horrocks, A. R. & Anand, S. C. (2000). Handbook of Technical Textiles. Cambridge: Woodhead Publishing.
2. Vincent, J. J. (1980). Shuttleless Looms. Manchester: The Textile Institute.
3. Talavasek, O. & Svaty, V. (1981). Shuttleless Weaving Machines. Oxford: Elsevier Scientific Publishing Company.
4. Ormerod, A. (1983). Modern Preparation and Weaving Machinery. London: Butterworth's & Co.
5. Karthik, T., Prabha Karan, C., & Rathinamoorthy, R. (2016). Nonwovens: Process, Structure, Properties & Applications. 1st Edition. Woodhead Publishing India.
6. Spencer D J, “Knitting Technology”, Textile Institute Publication, Manchester, UK, 3rd Edition, 2001

COURSE OBJECTIVES

1. To provide fundamental knowledge of apparel manufacturing processes, production planning, pattern specifications, and garment construction techniques.
2. To develop an understanding of fabric spreading, marker making, cutting, sewing technologies, and quality requirements in garment production.
3. To familiarize students with apparel machinery, garment components, finishing operations, and sustainable apparel manufacturing practices.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the structure of the apparel industry, anthropometric measurements, specification sheets, technical packs, and pre-production activities.	Understand
CO 2	Apply principles of fabric spreading, lay planning, marker making, and fabric cutting for efficient material utilization.	Apply
CO 3	Analyze seam, stitch, and sewing thread characteristics and their influence on garment quality and performance.	Analyse
CO 4	Describe the mechanisms, accessories, and operational features of garment sewing machines and needles.	Understand
CO 5	Describe about garment accessories, fusing, pressing, packing processes, and sustainable solutions in apparel production.	Understand

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	S	M	-	-	M
2	S	S	-	-	M
3	S	M	M	-	M
4	S	M	-	-	M
5	M	S	S	-	M

UNIT I

Introduction to Indian apparel industry; Anthropometry- definition and tools, Specification sheet, technical pack; Structure of an apparel industry-work flow, Pre production planning; types of samples and sample approval;

UNIT II

Basics of fabric spreading, modes of spreading, different fabric packages, spreading tension, uniformity and alignment, woven fabric lay, knitted fabric lay, types of fabric lay, Lay planning principles. Marker making, principles of marker making, types of markers, marker planning and marker efficiency, and fabric design parameters on markers, matching and grain line. Fabric cutting methods, latest fabric cutting equipments, and record keeping in cutting room,

advancements in cutting room technology

UNIT III

Seams: Definition, Types of seams, seam quality, seam performance, factors to be considered in the selection of seam, seam finishes, seam defects. Stitches: Definition, stitch classes, stitch parameters, factors to be considered in the selection of stitches. Stitching defects. Sewing Thread: Types, construction, sewing thread quality, selection of sewing thread.

UNIT IV

Single needle lock stitch machine – over lock – flat lock machine - mechanism and accessories; needle – functions, special needles, needle size, numbering, needlepoint.

UNIT V

Garment accessories, trims and components; fusing requirements and process; Objectives of pressing and packing- Suitable solutions for Sustainable Apparel production.

TEXT BOOKS:

1. Carr H., and Latham B., “The Technology of Clothing Manufacture”, Blackwell Science Ltd., Oxford, 1994.
2. Gerry Cooklin, “Introduction to Clothing Manufacture” Blackwell Science Ltd., 1995.
3. Harrison.P.W Garment Dyeing, The Textile Institute Publication, Textile Progress, Vol .19 No.2,1988.

REFERENCES:

1. Winifred Aldrich., “Metric Pattern Cutting”, Blackwell Science Ltd., Oxford, 1994
2. Peggall H., “The Complete Dress Maker”, Marshall Caverdish, London, 1985
3. Jai Prakash and Gaur R.K., “Sewing Thread”, NITRA, 1994
4. Ruth Glock, Grace I. Kunz, “Apparel Manufacturing”, Dorling Kindersley Publishing Inc., New Jersey, 1995.
5. Pradip V.Mehta, “An Introduction to Quality Control for the Apparel Industry”, J.S.N. Internationals, 1992.

COURSE OBJECTIVES

1. To introduce the fundamental concepts of psychology and their application in fashion, design, and consumer behavior.
2. To develop an understanding of perception, colour psychology, emotional design, and visual communication in fashion products and experiences.
3. To enable students to analyze the relationship between personality, self-image, emotions, and fashion choices for creating user-centered and socially responsible designs.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the principles of human cognition, perception, and their role in design psychology.	Understand
CO 2	Analyze the psychological effects of color on emotions, behavior, and cultural perception.	Analyse
CO 3	Apply emotional design principles and human-centered design approaches in product and visual design.	Evaluate
CO 4	Evaluate visual communication strategies using graphic design principles and aesthetics.	Analyse
CO 5	Interpret visual illusions and perceptual phenomena for creative and functional design applications.	Understand

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	M	M	M	-	S
2	S	M	-	-	M
3	M	S	-	-	M
4	M	S	S	-	M
5	M	M	S	M	S

UNIT I Introduction to Design Psychology

Introduction to Design Psychology - Human Thought, Human Cognition and Emotion, role of psychology in design. Perception and Visual Design - Principles of visual perception, Psychological Perception, humans interpret and respond to visual stimuli. Ethical Considerations in Design Psychology

UNIT II Color Psychology

Color Psychology - Color and Emotion, Psychological Responses, psychological impact of color, Color Symbolism and Associations, Color Shapes Focus and Performance, Color Influences - Moods, Feelings and Behaviors. Visual hierarchy, Culture and color perception, color psychology in design.

UNIT III Emotional Design

Emotional Design - foundation for emotional design, personality, emotional design principle, personas, human nature and design, role of emotions in design, creating emotionally engaging designs, The Psychopathology of Everyday Things, Human-Centered Design, Fundamental Principles of Interaction, The System Image, Design Challenge, Design Thinking.

UNIT IV Graphic Design and Visual Communication

Graphic Design and Visual Communication- Effective visual communication and messaging, user behavior and choices, power of aesthetics. The physiology and psychology of vision, Graphic Design - using design elements and principles to create meaning, Analogy-Metaphor-Symbolism, Iconography, aesthetics, structure and appearance.

UNIT V Illusion

Illusion: The role of illusions in art and design, The Psychology of Perception-brain processes -visual information- depth, motion, and dimension Color Illusions - Afterimage illusions, Simultaneous contrast illusions, Color constancy illusions Geometric Illusions - Müller-Lyer illusion, Ponzo illusion, Ames room illusion. size illusion, line illusion - Ebbinghaus illusion, Delboeuf illusion, Vertical-horizontal illusion.

TEXT BOOKS:

1. Pine, B. J., II, & Gilmore, J. H. (2011). *The experience economy: Work is theatre and every business a stage* (Updated ed.). Harvard Business Review Press.
2. Lidwell, W., Holden, K., & Butler, J. (2010). *Universal principles of design* (2nd ed.). Rockport Publishers.
3. Norman, D. A. (2002). *The design of everyday things*. Basic Books.
4. Eysenbach, M. C. (2016). *The science behind everyday things: How everyday physical objects and products influence our cognition and behavior*. Springer.
5. Gaver, W. W., Takayama, Y., & Inomata, T. (2017). *Design thinking for social innovation: Jacksons in action*. MIT Press.
6. Norman, D. A. (2013). *Emotional design: Why we love (or hate) everyday things*. Basic Books.
7. Preece, J., Rogers, Y., & Sharp, H. (2015). *Interaction design: Beyond human-computer interaction* (4th ed.). John Wiley & Sons.

COURSE OBJECTIVES

1. To develop fashion illustration skills through the study of human anatomy, croquis development, garment details, and fashion figure rendering.
2. To enhance students' ability to visualize and communicate fashion ideas using design elements, principles, and illustration techniques.
3. To foster creativity and artistic expression in fashion design through the illustration of garments, accessories, and fashion details.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Develop fashion figures and croquis for male and female forms using appropriate body proportions and poses.	Apply
CO 2	Apply elements and principles of design in fashion illustrations.	Apply
CO 3	Create dress designs using different colour harmonies and colour applications.	Create
CO 4	Analyze figure irregularities and illustrate suitable silhouettes for different body types.	Analyze
CO 5	Design appropriate garments for various figure types using design and colour principles.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	M	-	-	-	M
2	M	-	-	-	M
3	S	M	-	-	M
4	M	S	M	-	M
5	M	S	M	M	S

LIST OF EXPERIMENTS:

1. Illustrate fashion Croquis – male and female: 9, 10 & 12 Head croquis
2. Illustrate different croquis poses - 9, 10 & 12 Head croquis
3. Illustrate garment designs for the Elements of Design
 - a. Line
 - b. Colour
 - c. Texture
 - d. Shape or form
 - e. Size
4. Illustrate garment designs for the Principles of Design
 - a. Balance in dress
 - b. Harmony in dress
 - c. Emphasis in dress

- d. Proportion in dress
- e. Rhythm in dress
- 5. Illustrate the Colour Harmony in Dress Design
 - a. Monochromatic colour harmony
 - b. Analogous colour harmony
 - c. Complimentary colour harmony
 - d. Double Complimentary colour harmony
 - e. Split Complimentary colour harmony
 - f. Triad colour harmony
- 6. Application of colour and principles of design in dress
 - a. Harmony through colour
 - b. Emphasis through colour
 - c. Proportion through colour
 - d. Rhythm through colour
 - e. Balance through colour
- 7. Illustration of Basic silhouettes of figure irregularities
- 8. Designing dresses for figure irregularities – becoming and unbecoming Stout figure, Thin figure, Slender figure

REFERENCES:

1. Abling, Bina. (2012). Fashion Sketchbook. 6th Edition. New York: Fairchild Book Publications.
2. Davis, Marian. L. (1996). Visual Design in Dress. 3rd Edition. New Jersey: Prentice Hall Inc.
3. Gillow, John. & Barnard, Nicholas. (2008). Indian Textiles. Reprint edition. Thames & Hudson Ltd.
4. Bhargav, Ritu. (2005). Fashion Illustration and Rendering. 1st Edition. New Delhi: B Jain Publication Pvt. Ltd.
5. Morris, Bethan. (2006). Fashion Illustrator, New Delhi: Laurence King Publishing.
6. Ireland, Patrick John. (1996). Fashion Design Illustration: Men. UK: Pavilion Books.
7. Ireland, Patrick John. (2003). Fashion Design Drawing and Presentation. Batsford Publishers.
8. Wayne, Chidy. (2009). Essential Fashion Illustration: Men. Beverly, Massachusetts: Rockport Publishers.

COURSE OBJECTIVES

1. To provide practical knowledge of weaving, knitting, and braiding machine mechanisms used in textile fabric production.
2. To develop skills in studying material passage, machine components, and fabric formation processes in various textile manufacturing systems.
3. To enable students to understand the operational principles and functional relationships of textile machinery through laboratory observation and analysis.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the material passage and fabric formation process in power looms and knitting machines.	Understand
CO 2	Identify and describe the working principles of shedding, picking, beat-up, let-off, and take-up mechanisms in weaving machines.	Understand
CO 3	Analyze the operational features of tappet, climax, and jacquard mechanisms used for pattern formation.	Analyse
CO 4	Examine the construction and working of single jersey, interlock, and rib knitting machines.	Analyse
CO 5	Interpret the functioning of braiding machines and compare fabric production methods in weaving, knitting, and braiding technologies.	Analyse

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	S	M	-	-	M
2	S	M	-	-	M
3	S	S	M	-	M
4	S	M	-	-	M
5	S	S	M	-	M

LIST OF EXPERIMENTS

1. Study of material passage in power loom.
2. Study of negative shedding mechanism in loom: Tappet/Climax
3. Study of picking and beat up mechanism in power loom
4. Study of let-off and take up mechanism in loom
5. Study of single cylinder single lift jacquard mechanism in loom.
6. Study of material passage Single jersey knitting machine.
7. Study of material passage Interlock knitting machine
8. Study of Rib knitting machine
9. Study of material passage in braiding machine

REFERENCES:

1. Grosicki, Z. J. (2004). Watson's Textile Design and Colour-elementary Weaves and Figured Fabrics. 7th Edition. England: Woodhead Publishing Ltd.
2. Talukdar, M. K. (1982). An Introduction to Winding and Warping. Mumbai: Textile Trade Press.
3. Anbumani N, "Knitting-Fundamentals, Machines, Structures and Developments", New Age International (P) Ltd., New Delhi, 2007.
4. Spencer D J, "Knitting Technology", Textile Institute Publication, Manchester, UK, 3rd Edition, 2001.

COURSE OBJECTIVES

1. To provide knowledge of various yoga systems, yogic practices, and holistic approaches to physical and mental well-being.
2. To develop self-awareness, personality development, emotional balance, and healthy lifestyle practices through yoga and introspection.
3. To familiarize students with ethical values, philosophical principles, and life skills for personal and social well-being.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the principles and practices of different types of yoga and their benefits for holistic development.	Understand
CO 2	Demonstrate selected yogasanas, simplified physical exercises, and relaxation techniques for maintaining physical fitness and mental wellness.	Apply
CO 3	Describe the philosophy, practices, and benefits of Varma art and naturopathy.	Understand
CO 4	Apply introspection techniques to develop emotional control, positive thinking, and personality enhancement.	Apply
CO 5	Interpret the life philosophies and ethical teachings of Bharathiar, Ramalinga Vallalar, and Vedhathiri Maharishi for personal and social development.	Analyse

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	M	M	M	-	M
2	M	S	M	M	M
3	M	S	M	-	M
4	S	M	S	S	M
5	S	S	S	M	M

UNIT I: Yoga Types

Types Of Yoga – Karma Yoga – Bhakthi Yoga – Raja Yoga – Gnana Yoga – Hata Yoga.
 Agna- Santhi – Clearence – Thuriya – Thuriyatheetham.

UNIT II: Yogasana, Varma Art and Naturopathy

Padmasana, Halasana, Vajrasana, Sukasana, Chakrasana (Side Posture), Viruchasana, Bhujangasana, Yoga Mudra, Ustrasana, Maha Mudra, Vakkarasana. Art of Varma – Philosophy Of Varma – Practices – Benefits – Methods of Naturopathy.

UNIT III: Simplified Physical Exercises

Physical Exercises – Hand Exercises – Leg Exercises – Breathing Exercises – Eye Exercises – Kapalabathi – Makarasana – Body Massage – Acupressure – Relaxation Science and Total Consciousness – Integrated Approach.

UNIT IV: Personality Development

Introspection – Analysis of Thoughts – Moralization of Desire – Neutralization of Anger – Eradication of Worries – Benefits of Blessing.

UNIT V: Life lessons

Divine thoughts of Bharathiar – Concepts of Ramalinga Vallalar Vethathirian principles – Practical solutions of Vethathirian philosophy.

TEXT BOOK

1. Vedhathiri Maharishi. *Simplified physical exercises*. Vedhathiri Maharishi Pathipagam.

REFERENCES

1. Nagendra, H. R. *Yoga: Its basis and applications*. S-VYASA Publications.
2. Nagendra, H. R. *New perspective in stress management (SMET)*. S-VYASA Publications.
3. Vedhathiri Maharishi. *My life history*. Vedhathiri Maharishi Pathipagam.
4. Patanjali. *Patanjali's yoga sutras*. S-VYASA Publications.
5. *Yoga: Breathing practices*. (n.d.). S-VYASA Publications.

SEMESTER III

26BSTX31

FABRIC STRUCTURE AND ANALYSIS

L	T	P	C
4	0	0	4

COURSE OBJECTIVES

1. To provide comprehensive knowledge of woven and knitted fabric structures, their construction principles, and design characteristics.
2. To develop an understanding of loom requirements, fabric formation mechanisms, and structural variations used in decorative and functional textiles.
3. To enable students to analyze and evaluate woven and knitted fabric structures for appropriate textile and apparel applications.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the construction, characteristics, and loom requirements of basic weaves and their derivatives.	Understand
CO 2	Analyze honeycomb, huck-a-back, mock leno, crepe, and colour-and-weave effect fabrics with respect to structure and performance.	Analyse
CO 3	Examine the construction and applications of Bedford cords, piques, backed fabrics, and figured fabrics.	Analyse
CO 4	Explain the structural principles and characteristics of pile fabrics, double cloths, damasks, leno fabrics, and 3D woven structures.	Understand
CO 5	Analyze weft and warp knitted fabric structures and relate stitch formations to fabric properties and end-use applications.	Analyse

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	S	M	-	-	M
2	S	M	-	-	M
3	S	S	-	-	M
4	S	S	M	-	M
5	S	M	-	-	M

UNIT I

Elementary weaves – plain and its derivatives, twill and its derivatives, satin, sateen and their derivatives – loom requirements

UNIT II

Ordinary and Brighten Honey Comb; Huck-a-Back and its modifications; Mock Leno;

crepe weaves; colour and weave effects – loom requirements

UNIT III

Bedford cords - plain and twill faced, wadded; welts and piques, wadded piques; backed fabrics - warp and weft, reversible and non-reversible fabrics; extra warp and extra weft figuring – single and double colour – loom requirements

UNIT IV

Pile fabrics; warp pile - wire pile, terry pile, loose backed; weft pile – plain back and twill back velveteen, lashed pile, corduroy, weft plush – loom requirements. Double cloth, types of stitches; Damasks; Gauze and Leno principles – loom requirements, 3D woven structures.

UNIT V

Weft Knit Structures: Needle loop, sinker loop, technical face, technical back, open loop, closed loop, knit stitch, tuck stitch, purl stitch, miss stitch - single jersey, rib, purl and interlock, their structures and fabric characteristics. Flat knitting Basic structures- Cardigan, Racked Rib and Cable stitch. Warp knitted fabric Standard Structures.

TEXT BOOKS:

1. Grosicki, Z. J. (2004). Watson's Textile Design and Colour-elementary Weaves and Figured Fabrics. 7th Edition. England: Woodhead Publishing Ltd.
2. Anbumani N, "Knitting-Fundamentals, Machines, Structures and Developments", New Age International (P) Ltd., New Delhi, 2007.

REFERENCES:

1. Talukdar, M. K. (1982). An Introduction to Winding and Warping. Mumbai: Textile Trade Press.
2. Spencer D J, "Knitting Technology", Textile Institute Publication, Manchester, UK, 3rd Edition, 2001

COURSE OBJECTIVES

1. To provide comprehensive knowledge of pattern making principles, body measurements, drafting techniques, and garment construction requirements.
2. To develop skills in pattern development, dart manipulation, grading, draping, and garment fit analysis for apparel production.
3. To familiarize students with industrial pattern making practices and computer-aided applications used in modern apparel manufacturing.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain pattern making fundamentals, body measurements, figure analysis, and workroom practices used in apparel manufacturing.	Understand
CO 2	Develop basic garment blocks and apply dart manipulation techniques for creating garment styles and fit variations.	Apply
CO 3	Construct patterns for different sleeves, collars, cuffs, and yokes based on garment design requirements.	Apply
CO 4	Draft and modify patterns for garments such as shirts, trousers, skirts, blouses, and nightwear using manual and CAD techniques.	Apply
CO 5	Analyze grading and draping methods to develop well-fitted garment patterns for various body sizes and styles.	Analyse

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	S	M	-	-	M
2	S	M	-	-	M
3	S	M	-	-	M
4	S	S	M	-	M
5	S	S	M	-	M

Unit -I**Measurements and Workroom Practices:**

Flow chart of garment manufacturing Pattern: Definition, Importance, Types: basic pattern, working pattern and production pattern; Pattern making: Definition, Techniques: drafting and draping; Pattern making tools and workroom terms and definitions. Industrial and bespoke patterns. Figure analysis: Head theory: Seven and Half and Eight. Measuring techniques: Introduction; Standard Measurement charts for male, female and kids, Body measurements: circumference measurement, Vertical measurements and horizontal measurements and measuring the form.

Unit -II**Block preparation and Dart manipulation:**

Drafting of basic bodice, Skirt blocks and sleeve Dart manipulation: Pivotal method,

Slash and spread method, Designing with darts, Tucks, Pleats, Flares, Gathers and Style lines, ease allowances, influence of allowances on garment fit.

Unit -III

Sleeves and Collars:

Sleeves: Set-in-sleeves: Plain, Puff, Bell, Bishop, Circular and Leg-o-mutton; Sleeves combined with bodice: Kimono, Dolman and Raglan. Collars: Convertible, Shirt, Mandarin, Peter pan, Cape, Square, Scalloped, Sailor, Puritan, Shawl, and Notch collar. Cuff: Shirt cuff, French cuff and Contoured cuff. Yokes: Preparing patterns for yokes: Partial, Yoke without fullness, Yoke with fullness and Yoke supporting or releasing fullness.

Unit -IV

Drafting for Garments:

Drafting: Basic principles and methodologies used to draft block patterns for the following garments: Shirt, Trouser, Skirt, Blouse and Nightwear. Pattern alterations: Importance, Principles and pattern alterations for blouse and trouser. Computer applications in pattern making: Fundamentals of pattern making, grading and marker planning using CAD.

Unit -V

Grading and Draping:

Grading: Principles of pattern grading, Types: Draft grading: Two dimensional and Three dimensional grading, Track grading; Grading of basic back, Basic front, Basic sleeve and Basic collar. Draping: Introduction, Importance, Preparation of dress forms, Preparation of muslin for draping; Draping for bodice, sleeve and skirt, Advantages and disadvantages.

TEXT BOOKS

1. Helen Josep Armstrong "Pattern Making for Fashion Design" 5 th Edition, Pretence Hall, New Jercey , 2014.
2. Claire Schaeffer, "The Complete Book of Sewing Shortcuts", Sterling Publishing(NY), 2009.

REFERENCE BOOKS

1. Winifred Aldrich, "Pattern Cutting for Menswear", 4th edition, Blackwell Science Publisher, USA, 2006.
2. Winifred Aldrich, "Metric Pattern Cutting", Om Book Service, 1997.
3. Gerry Cooklin, "Master Patterns and Grading for Women's Outsize", Blackwell Scientific Publications, 1995.

COURSE OBJECTIVES

1. To provide knowledge on time series analysis, sampling techniques, measurement scales, and data collection methods used in research.
2. To develop practical skills in analyzing and interpreting data using Excel and SPSS statistical tools.
3. To enable students to prepare, analyze, and present research reports for decision-making in textile and related industries.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the concepts of time series, sampling techniques, scaling methods, and data collection procedures.	Understand
CO 2	Apply time series analysis and sampling methods for organizing and interpreting research data.	Apply
CO 3	Use Excel tools and functions to analyze, visualize, and interpret textile-related datasets.	Apply
CO 4	Perform statistical analyses using SPSS, including descriptive statistics, correlation, regression, hypothesis testing, and ANOVA.	Analyse
CO 5	Prepare and interpret research reports based on statistical findings and project outcomes.	Evaluate

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	-	-	-	-	M
2	M	-	-	M	M
3	M	M	-	M	S
4	S	M	-	M	S
5	M	M	M	M	S

UNIT – I

Concept of time series – Source of time series data – Component of time series – Additive and Multiplicative models – Resolving the components of time series –Trend – Methods of measuring trend

UNIT – II

Sampling design – Census and sample survey – Implication of sample design – Sampling procedure – Characteristic – Types – Measurement and Scaling techniques - Measurement of scales – Scaling – Scale classification bases - Scale construction techniques – Methods of data collection – Primary and secondary data - Observation, interview, survey- data classification and tabulation-Case study method

UNIT – III

EXCEL:

1. Mathematical functions (SUM (), MAX (), MIN (), COUNT (), AVERAGE () combining basic function(MAX,MIN)
2. Illustrate year-wise performance of sales, purchase, profit of company by using chart wizard.
3. Aggregation Functions (SUM IF, COUNT IF)
4. Regression Analysis (FORECAST and TREND)
5. Mini Project – Apply necessary Excel tools to analyze textile database

UNIT – IV

SPSS:

1. Functions of Statistics (Classification, Diagrams and Graphical representation of Data)
2. Descriptive Statistics
3. Calculation of Probabilities under various distributions
4. Correlation & Regression – Partial and Multiple Correlations, Multiple Regression
5. Confidence Intervals for mean, variance, proportions
6. Inferential Statistics for Single through multiple samples. (Chi – Square, t, F and z test)
7. Non – Parametric tests.
8. Experimental Design: One way ANOVA, Two way ANOVA – Factorial designs – Multiple comparison tests
9. Mini Project – Apply necessary tools to analyze textile database

UNIT – V

Project report preparation and interpretation- steps in writing report-types of report

NOTE: Units III and IV shall be conducted as practical sessions. The End Semester Examination will cover all the units.

TEXT BOOKS

1. Gupta, S. P., & Gupta, M. P. (2014). *Business statistics*. Sultan Chand & Sons. New Delhi
2. Kothari, C. R. (2009). *Research methodology: Methods and techniques*. New Age International Publishers.
3. Gupta, S. P. (2021). *Statistical methods*. Sultan Chand & Sons, New Delhi
4. Foster, J. J. (2011). *Data analysis using SPSS*. Sage Publications.
5. Winston, W. L. (2014). *Microsoft Excel data analysis and business modeling*. Microsoft Press.

REFERENCE BOOKS

1. Gupta, S. C., & Kapoor, V. K. (2014). *Fundamentals of applied statistics*. Sultan Chand & Sons, New Delhi
2. Cooper, D. R., & Schindler, P. S. (2014). *Business research methods*. McGraw Hill Education.
3. Bruce, P., & Bruce, A. (2020). *Practical statistics for data scientists*. O'Reilly Media.
4. Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics*. Pearson Education.
5. Pallant, J. (2020). *SPSS survival manual*. McGraw Hill Education.

COURSE OBJECTIVES

1. To impart knowledge of body measurements and pattern drafting techniques used in garment construction.
2. To develop skills in drafting basic and advanced garment patterns for different apparel components and age groups.
3. To enable students to design, grade, and prepare garment patterns for children's wear using standard sizing systems.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Identify and record body measurements for men, women, and children required for pattern development.	Understand
CO 2	Draft basic patterns for bodice, sleeve, skirt, and trouser using standard measurements.	Apply
CO 3	Develop patterns for garment components such as sleeves, collars, and yokes according to design specifications	Apply
CO 4	Design and grade patterns for children's garments including baby frocks, rompers, and T-shirts.	Analyse
CO 5	Construct and evaluate garment patterns for fit, functionality, and production requirements.	Evaluate

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	-	-	-	M	M
2	M	-	-	M	S
3	M	M	-	M	S
4	M	M	-	S	S
5	S	M	M	S	S

LIST OF EXPERIMENTS:

1. Measuring the form – Male, female and child.
2. Drafting the basic pattern set of bodice and sleeve using the standard measurements.
3. Drafting the basic pattern of skirt and trouser using the standard measurements.
4. Drafting the patterns for the following components:
 - a) Sleeve
 - i. Plain
 - ii. Puff sleeve
 - iii. Bell sleeve
 - iv. Raglan
 - b) Collar
 - i. Peter pan
 - ii. Stand

- iii. Shirt
 - c) Yoke
 - i. Partial yoke
 - ii. Yoke with fullness
- 5. Designing, drafting and grading for children's wear
 - i. Baby frock
 - ii. Rompers
 - iii. Round neck T-Shirt

REFERENCES:

1. Armstrong, Helen. J. (2011). Patternmaking for Fashion Design. 5th Edition. Pearson Education Pvt. Ltd.
2. Aldrich, Winifred. (2012). Metric pattern cutting for children's wear and baby wear. 4th Edition. John Wiley and Sons.
3. Cooklin, Gerry. (1995). Master patterns & grading for women's outsize. 1st Edition. Wiley - Blackwell Publications.
4. Bray, Natalie. (2003). More dress pattern designing. 4th Edition. Wiley - Blackwell Publication.

COURSE OBJECTIVES

1. To provide knowledge of various surface ornamentation and fabric embellishment techniques used in apparel and textile products.
2. To develop practical skills in applying traditional and contemporary decorative techniques on fabrics.
3. To encourage creativity and aesthetic appreciation in designing value-added textile products through surface embellishments.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the principles, materials, tools, and applications of various fabric embellishment techniques.	Understand
CO 2	Perform fabric painting, block printing, dyeing, embroidery, and smocking techniques using appropriate methods and tools.	Apply
CO 3	Create decorative textile surfaces using appliqué, beadwork, sequins, and embroidery techniques.	Apply
CO 4	Analyze and select suitable embellishment techniques based on design requirements, fabric characteristics, and end-use applications.	Analyse
CO 5	Design and develop aesthetically appealing textile products incorporating multiple surface ornamentation techniques.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	-	-	-	M	M
2	M	M	-	M	S
3	M	M	-	M	S
4	M	S	M	M	M
5	S	S	M	S	S

LIST OF EXPERIMENTS:

1. Create decorative textile designs using Fabric Painting techniques.
2. Develop printed fabric samples using Block Printing methods.
3. Practice and execute various stitches through Hand Embroidery.
4. Produce decorative patterns using Machine Embroidery techniques.
5. Create unique fabric patterns using Shibori Dyeing techniques.
6. Design and develop embellished fabric samples using Appliqué work.
7. Apply decorative effects through Beadwork and Sequin Embellishments.
8. Create textured fabric surfaces using Geometric, Stitch and Shirring Smocking techniques.
9. Create a product using crocheting technique.
10. Design and prepare a value-added textile product by integrating multiple surface

ornamentation techniques.

REFERENCES:

1. Mathews, Mary. Practical clothing construction Part -I Basic Sewing Processes. (No Year and Publication)
2. Mathews, Mary. Practical clothing construction Part-II Designing, Drafting and Tailoring. (No Year and Publication)
3. Zarapkar, K. R. (2011). System of Cutting. India: Navneet Publications.
4. Laing, R. M., Webster, J. (1998). Stitches & Seams. India: The Textile Institute.

COURSE OBJECTIVES

1. To impart knowledge of basic sewing tools, hand stitches, machine operations, and garment construction techniques.
2. To develop practical skills in preparing garment components such as seams, plackets, collars, sleeves, pockets, yokes, and fasteners.
3. To enable students to construct and evaluate garment samples with appropriate finishing and decorative techniques.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the functions of sewing machines, hand stitches, seams, seam finishes, and garment construction components.	Understand
CO 2	Perform hand and machine stitching techniques to prepare samples of seams, seam finishes, and fullness.	Apply
CO 3	Construct garment components such as facings, plackets, collars, pockets, sleeves, yokes, and fasteners using standard methods.	Apply
CO 4	Analyze the suitability of construction techniques and finishing methods for different garment applications.	Analyse
CO 5	Develop well-finished garment samples incorporating appropriate construction, fastening, and decorative techniques.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	-	-	-	M	M
2	M	-	-	M	S
3	M	M	-	M	S
4	M	M	M	M	M
5	S	M	M	S	S

LIST OF EXPERIMENTS

1. Study on parts and functions of sewing machine
2. Prepare samples for hand stitches
 - a. Temporary stitches: even basting, uneven basting, diagonal basting and slip basting.
 - b. Permanent stitches: running, hemming, run and back stitch, over casting, overhanding and whipping.
3. Prepare samples for seams and seam finishes
 - a. Seams: plain, single top stitch, double top stitch, welt, lapped, slot, flat fell, french, hemmed flat fell, mantua maker's and piped seam.
 - b. Seam Finishes: pinked, double stitch, edge stitch, herring bone, bound seam edge finish and overcast finish.

4. Preparation of samples for Fullness (darts, tucks, pleats, flares, godets, gathers and shirrs, frills and ruffles).
5. Prepare samples for facings and bindings in necklines- bias, shaped and decorative.
6. Prepare samples of plackets – Continuous bound placket, 2-piece placket, tailor placket, fly opening and zipper
7. Prepare samples of collars – PETER pan collar, shirt collar and stand collar
8. Prepare samples of pockets – Patch, set in seam and set in slot
9. Prepare samples of sleeves – Plain, puff, raglan and kimono
10. Prepare samples of yokes – Partial yoke, yoke with fullness
11. Prepare samples of fasteners – Zipper, hook and eye
12. Prepare samples of trimmings and decorations

REFERENCES:

1. Mathews, Mary. Practical clothing construction Part -I Basic Sewing Processes. (No Year and Publication)
2. Mathews, Mary. Practical clothing construction Part-II Designing, Drafting and Tailoring. (No Year and Publication)
3. Zarapkar, K. R. (2011). System of Cutting. India: Navneet Publications.
4. Laing, R. M., Webster, J. (1998). Stitches & Seams. India: The Textile Institute.
5. Claire, B. Shaeffer. (2012). Sewing for the Apparel Industry. Vol. 978. 2nd Edition. India: Pearson Publishers.
6. Cooklin, Gerry., Hayes, Steven. G., McLoughlin, John., Fairclough, Dorothy. (2012). Cooklin's Garment Technology for Fashion Designers. John Wiley & Sons.
7. Knight, Lorna. (2010). 200 Sewing Tips, Techniques and Trade Secrets. Griffin: St. Martin's Press.
8. Hosegood, Besty. (2006). The Complete Book of Sewing. London: Dorling Kindersley Ltd.

COURSE OBJECTIVES

1. To impart knowledge of fabric structure analysis for woven and knitted fabrics through the study of weave patterns and construction parameters.
2. To develop practical skills in identifying, analyzing, and interpreting woven and knitted fabric structures.
3. To enable students to evaluate fabric characteristics and relate structural parameters to fabric performance and end-use applications.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the principles of woven and knitted fabric structures and their constructional features.	Understand
CO 2	Analyze woven fabrics by determining design, draft, lifting plan, thread density, yarn count, crimp, and GSM.	Analyse
CO 3	Identify and differentiate various woven fabric structures such as plain, twill, satin, honeycomb, pile, leno, and double cloth weaves.	Apply
CO 4	Analyze the constructional parameters and structural characteristics of knitted fabrics including single jersey, rib, and interlock fabrics.	Analyse
CO 5	Evaluate fabric structures and construction details for suitable textile applications and performance requirements.	Evaluate

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	-	-	-	M	M
2	M	M	-	M	S
3	M	M	-	M	S
4	M	M	-	M	S
5	S	S	M	M	S

LIST OF EXPERIMENTS:

- Analysis of weave and construction details (Design, Draft, Lifting (Peg) plan, thread density, warp & weft count, crimp, GSM and etc.) of fabrics with
 1. Plain weave
 2. Twill weave
 3. Satin / Sateen weave
 4. Honeycomb (ordinary / Brighton) weave
 5. Huck-a-back weave
 6. Extra warp and extra weft figuring
 7. Pile fabrics (warp / weft)
 8. Gauze and Leno weave
 9. Double cloth

10. Mock-leno weave
11. Bedford cord weave.
- **Analysis of construction details of the following knitted fabric structure**
 12. Single jersey
 13. Double jersey (Rib / Interlock)

REFERENCES:

1. Grosicki, Z. J. (2004). Watson's Textile Design and Colour-elementary Weaves and Figured Fabrics. 7th Edition. England: Woodhead Publishing Ltd.
2. Talukdar, M. K. (1982). An Introduction to Winding and Warping. Mumbai: Textile Trade Press.
3. Anbumani N, "Knitting-Fundamentals, Machines, Structures and Developments", New Age International (P) Ltd., New Delhi, 2007.
4. Spencer D J, "Knitting Technology", Textile Institute Publication, Manchester, UK, 3rd Edition, 2001

COURSE OBJECTIVES

1. To provide students with practical exposure to industrial operations, technologies, and professional practices in the textile and apparel sector.
2. To develop technical, analytical, communication, and teamwork skills through hands-on industrial training.
3. To enable students to apply classroom knowledge to real-world industrial problems and prepare professional internship reports.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the organizational structure, workflow, and operational practices of the industry where the internship is undertaken.	Understand
CO 2	Apply theoretical knowledge and technical skills to perform assigned tasks in the industrial environment.	Apply
CO 3	Analyze industrial processes, machinery, quality requirements, and workplace practices relevant to the profession.	Analyse
CO 4	Demonstrate professional ethics, teamwork, safety awareness, and responsibility in the workplace.	Apply
CO 5	Prepare and present a comprehensive internship report highlighting observations, learning experiences, and recommendations.	Evaluate

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	M	M	-	M	M
2	M	M	-	S	M
3	S	S	M	M	M
4	S	M	S	S	M
5	M	M	M	M	S

- The students individually undergo training in reputed firms/ research institutes / laboratories for the specified duration. After the completion of training, a detailed report should be submitted within ten days from the commencement of next semester. The students will be evaluated as per the Regulations

COURSE OBJECTIVES

1. To provide fundamental knowledge of textile wet processing, including preparatory processes, dyeing, printing, and finishing of textile materials.
2. To develop an understanding of dyeing and printing methods, machinery, and finishing techniques used in the textile industry.
3. To create awareness of environmental issues associated with textile processing and the methods employed for pollution control and sustainable production.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the objectives, principles, and sequence of textile wet processing operations for various fibres and blends.	Understand
CO 2	Describe dyeing and printing methods, machinery, dyes, and processing parameters used in textile coloration.	Understand
CO 3	Analyze the effects of various finishing treatments and advanced technologies on textile product performance.	Analyse
CO 4	Evaluate textile processing techniques with respect to product quality, functionality, and end-use requirements.	Evaluate
CO 5	Assess environmental issues in textile wet processing and recommend suitable pollution control and wastewater treatment methods.	Evaluate

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	M	-	-	-	M
2	M	-	-	-	M
3	M	M	-	M	M
4	S	M	M	M	M
5	S	S	M	M	S

UNIT I

Preparatory Processes: Introduction- water quality requirements – impurities in greige fabric. Objectives and types : shearing / cropping, desizing, singeing, scouring, bleaching and mercerization. Wet processing sequence of cotton, silk, wool, viscose, polyester, nylon and polyester / cotton blends.

UNIT II

Dyeing: Introduction - objectives - basic classification of dyes - selection of dyes - dyeing methods – mechanism - factors influencing the dyeing process. Types of dyeing machine – hank and yarn package, jigger, winch, j-box, jet, soft flow, HTHP, padding mangle and garment dyeing.

UNIT III

Printing: Introduction - difference between dyeing and printing- essential ingredients for printing paste - methods of printing: stencil - hand block- screen: hand, flat bed, rotary and roller - heat transfer - digital or inkjet. Styles of prints: direct, discharge, resist, pigment, blotch, flock, burn- out and duplex.

UNIT IV

Finishing: Introduction – classification - calendaring, sanforizing (0/0) / anti-shrink finishing, stentering, compacting, flame retardant, soil release, anti-static, enzyme wash, ultra-violet protection, insect resist, water proof, water repellent, bio polishing, stone wash and antimicrobial. Basic techniques and application of Micro-encapsulation, plasma and nanotechnology.

UNIT V

Pollution Control: Introduction - types and causes of pollution – determination of BOD, COD, TDS - waste water treatment methods – primary, secondary and tertiary treatment - zero liquid discharge.

TEXTBOOKS:

1. Shenai, V. A. (1995). Technology of Textile Processing. Vol. III Technology of Bleaching and Mercerising. Mumbai: Sevak Publications.
2. Walters, A., Santillo, D. & Johnston, P. (2005). An Overview of Textiles Processing and Related Environmental Concerns. UK: University of Exeter.
3. Shenai, V. A. (2000). Technology of Dyeing. Mumbai: Sevak Publications.
4. Shenai, V. A. (1999). Technology of Printing. Mumbai: Sevak Publications.
5. Schindler, W. D. & Hauser, P. J. (2004). Chemical Finishing of Textiles. England: Woodhead Publishing Ltd.

REFERENCES:

1. Shore, J. (1998). Blend Dyeing. London: Society of Dyers Colourists.
2. Shenai, V. A. (1995). Introduction to the Chemistry of Dyestuffs. Mumbai: Sevak Publications.
3. Mittal, R. M. & Trivedi, S. S. (1983). Chemical Processing of Polyester / Cellulosic Blends. Ahmedabad Textile Industries Research Association.
4. Shenai, V. A. (2003). Technology of Textile Finishing. Mumbai: Sevak Publications.
5. Parmer, M. S., Satsangi, S. S. & Jai Prakash (1996). Denim – A Fabric for All. Northern India Textile Research Association.
6. Perkins, W. S. (1996). Textile Colouration and Finishing. England: Woodhead Publishing Ltd.
7. Skelley, J. K. (2003). Water Recycling in Textile Wet Processing. England: Woodhead Publishing Ltd.
8. Rao, J. V. (2006). Denim Washing. Ghaziabad: Northern India Textile Research Association.

COURSE OBJECTIVES

1. To provide fundamental knowledge of computer systems, information processing, data representation, and storage technologies.
2. To develop an understanding of Management Information Systems (MIS), database management systems, and system development methodologies.
3. To enable students to appreciate the role of MIS, DSS, and GDSS in organizational decision-making and business management functions.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the fundamentals of computer systems, hardware, software, input/output devices, and data storage technologies.	Understand
CO 2	Describe the structure, functions, and applications of Management Information Systems and Database Management Systems.	Understand
CO 3	Analyze the stages of system development, the role of system analysts, and information requirements in organizations.	Analyse
CO 4	Evaluate the role of MIS in supporting managerial functions and organizational decision-making processes.	Evaluate
CO 5	Assess the applications of Decision Support Systems (DSS), Group Decision Support Systems (GDSS), and Executive Information Systems in business environments.	Evaluate

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	-	-	-	-	M
2	M	-	-	M	M
3	M	-	-	M	M
4	M	M	M	S	S
5	S	M	M	S	S

UNIT I

Computes and Information processing - classification of computers - main frames - mini computers- workstations - microcomputers - super computers - personal computers - computer - hardware and software - input devices - output devices – primary and secondary storage - magnetic disk storage - magnetic tape storage - optical disk storage - data representation in computers

UNIT II

Definition of management information system - structure of MIS - information system for decision making - data base management system.

UNIT III

System Development Methodologies – SDLC - system analysis - the role of system analyst - system planning and the mutual investigation - information gathering MIS organization - top management

UNIT IV

Management and MIS - strategic information system - MIS as competitive advantage - implications for managers - MIS support for planning, organizing, operating, controlling an knowledge work - specific function - finance - personnel - production - materials - marketing - batch processing Vs. online processing.

UNIT V

Decision support system - definition - examples of DSS - components - building DSS - Group Decision Support System - GDSS tools - Role of GDSS - executive system - benefits - examples.

TEXT BOOKS:

1. Gordan, B. Davis. (1984). Management Information System. 2nd Edition. New York: McGraw Hill Inc.
2. Sadagopan, S. (2005). Management Information System. India: Prentice Hall.
3. Mudrick, G. Robert, Joel E. Ross & James, R. Clagett. (1977). Management Information Systems. 1st Edition. PrenticeHall.

REFERENCES:

1. Rajagopalan,S.P. Management Information System. Chennai: Margham Publications.
2. Gordon Bitter Davis. (1973). Computer Data Processing. 2nd Edition. McGraw-Hill.
3. Kenneth, C. Laudon & Jane, P. Laudon. (2014). Management Information Systems. 12th Edition. Prentice-Hall.

COURSE OBJECTIVES

1. To provide knowledge of industrial engineering principles, productivity improvement techniques, and production management in the apparel industry.
2. To develop skills in plant layout planning, material handling, work study, and production efficiency analysis.
3. To familiarize students with lean manufacturing concepts and continuous improvement practices for apparel production systems.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the concepts of industrial engineering, productivity measurement, organizational structure, and plant layout in apparel manufacturing.	Understand
CO 2	Analyze plant layout, material handling systems, storage, and warehousing requirements for apparel production facilities.	Analyse
CO 3	Apply work study techniques including method study, motion study, time study, and SAM calculation to improve production efficiency.	Apply
CO 4	Evaluate productivity improvement methods, operator performance, and production systems using industrial engineering tools.	Evaluate
CO 5	Assess lean manufacturing principles and implement tools such as 5S, Kaizen, Kanban, Takt Time, and Six Sigma for continuous improvement.	Evaluate

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	-	-	-	M	M
2	M	M	-	M	M
3	M	M	-	S	M
4	S	M	M	S	M
5	S	S	M	S	S

UNIT I

Industrial Engineering: Concepts, functions and applications - Fundamentals of industrial engineering – operations analysis and design, operations control and management; productivity concept and importance, factors affecting productivity, kinds of productivity measures, Total productivity management.

UNIT II

Organisation and Plant Layout: Concepts, elements, importance, process and characteristics of organisation; organisational theories; organisational structure in the apparel industry; departmentation and delegation of authority in the apparel industry; concepts and factors governing plant location; plant layout – methods, procedure and types with respect to the

apparel industry; facility services like air, water, electricity, drainage; Computerised layout planning.

UNIT III

Material Handling: Functions and principles, relationship to plant layout, types of material handling equipments, selection of material handling equipment for the various operations in the apparel industry; storage and warehousing: functions, objectives and principles

UNIT IV

Time and motion study: Definition and concepts, objectives of method study and work measurement for the apparel industry; method study procedure; flow process charts for the various processes in the apparel industry; flow diagram, string diagram, multiple activity chart, SIMO chart; motion economy; time study procedures, standard data required for time study, use of time study in wage incentive and collective bargaining; operator efficiency distributions – SAM. Allowances.

UNIT V

Lean Manufacturing: Introduction, Importance. 7 wastes of lean – Tools of lean – Push, Pull system of production. Introduction to lean concepts - 5S, Kaizen, Kanban, Takt time, Six sigma. Case studies related to lean manufacturing.

TEXT BOOKS:

1. Maurice,Johnson.(1995).“Introduction of Work Study”, Geneva: International Labour Organization.
2. RameshBabu,V.(2012).“Industrial Engineering Application in Apparel Production”. New Delhi: Woodhead Publishing India,
3. Solinger,Jacob.(1998). “Apparel Manufacturing Hand Book”.2nd Edition., Columbia: Bobbin Blenheim Media Corp,

REFERENCES:

1. Juan Carlo, Hiba. (1998). “Improving working conditions and productivity in the garment industry”. Geneva: International Labour Organization.

COURSE OBJECTIVES

1. To provide knowledge of fashion forecasting processes, trend analysis, and market research techniques used in the fashion industry.
2. To develop skills in interpreting consumer trends and translating forecasts into fashion products and collections.
3. To familiarize students with brand development, positioning, communication, and strategic management of fashion brands.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the concepts, processes, and significance of fashion forecasting and brand management.	Understand
CO 2	Analyze fashion trends, consumer behavior, and market information to forecast fashion products and collections.	Analyse
CO 3	Develop forecasting tools such as mood boards, theme boards, colour boards, and trend reports.	Create
CO 4	Evaluate brand identity, positioning, communication strategies, and brand performance in the fashion industry.	Evaluate
CO 5	Formulate branding and marketing strategies for fashion and lifestyle products based on consumer and market insights.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	-	-	-	-	M
2	M	M	-	M	M
3	M	M	-	M	S
4	S	M	M	M	S
5	S	S	M	S	S

UNIT I – Fundamentals of Fashion Forecasting

Introduction to fashion forecasting – Definition, scope, and importance – Fashion cycle – Trend, fad, classic and mega trends – Types of forecasting: Short-term and long-term forecasting – Fashion forecasting process – Role of forecasting agencies – Sources of fashion information – Factors influencing fashion trends: social, cultural, economic, political, technological, and environmental factors.

UNIT II – Trend Research and Forecast Development

Trend research methods – Primary and secondary research – Consumer behavior and lifestyle analysis – Demographic and psychographic studies – Trend spotting and cool hunting – Colour forecasting – Fabric, texture, print, trim, and silhouette forecasting – Seasonal forecasting – Forecast interpretation and application in apparel product development.

UNIT III – Forecast Presentation and Fashion Product Development

Development of inspiration boards, mood boards, theme boards, colour boards, and story boards – Fashion calendars – Range planning and collection development – Forecast report preparation – Role of forecasting in fashion merchandising and retailing – Digital tools and AI applications in fashion forecasting – Sustainable fashion forecasting.

UNIT IV – Fundamentals of Brand Management

Brand: Meaning, functions, and importance – Product versus brand – Brand identity, brand image, brand personality, and brand equity – Brand positioning and repositioning – Brand architecture – Consumer behaviour and brand perception – Building and managing fashion brands – Indian and international fashion brands.

UNIT V – Strategic Brand Management

Brand communication strategies – Integrated Marketing Communication (IMC) – Fashion advertising and promotion – Digital branding and social media marketing – Influencer and celebrity marketing – Brand extension, co-branding, and luxury branding – Sustainable branding – Brand audit and valuation – Case studies of successful fashion and lifestyle brands.

TEXT BOOKS

1. Brannon, E. L. (2015). *Fashion forecasting* (4th ed.). Fairchild Books.
2. Posner, H. (2015). *Marketing fashion* (2nd ed.). Laurence King Publishing.
3. Tungate, M. (2012). *Fashion brands: Branding style from Armani to Zara* (3rd ed.). Kogan Page.
4. Keller, K. L. (2013). *Strategic brand management* (4th ed.). Pearson Education.
5. Easey, M. (2009). *Fashion marketing* (3rd ed.). Wiley-Blackwell.

COURSE OBJECTIVES

1. To provide knowledge of environmental systems, biodiversity, natural resources, pollution, and sustainable development with emphasis on industrial and textile applications.
2. To develop an understanding of environmental management, disaster risk reduction, industrial safety, and legal frameworks for sustainable professional practice.
3. To promote environmental ethics, disaster preparedness, and responsible decision-making for societal and environmental well-being.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the concepts of ecosystems, biodiversity, natural resources, and environmental sustainability.	Understand
CO 2	Analyze environmental pollution, environmental legislation, and sustainable practices in textile and apparel industries.	Analyse
CO 3	Explain environmental management systems, waste management, and cleaner production technologies for sustainable industrial development.	Understand
CO 4	Apply disaster preparedness, mitigation, emergency response, and industrial safety measures during natural and man-made disasters.	Apply
CO 5	Demonstrate environmental ethics, disaster resilience, and responsible professional practices for sustainable development.	Apply

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	S	M	-	-	M
2	S	S	M	-	M
3	M	S	M	-	M
4	S	S	M	S	M
5	M	S	S	M	M

UNIT I – Environmental Science, Ecosystems and Natural Resources

Introduction to environmental science—scope, importance, multidisciplinary nature and environmental components; ecosystem structure and functions; food chain, food web, ecological pyramids and ecosystem services; biodiversity, ecosystem conservation, and ecological balance; natural resources including forest, water, land, mineral and energy resources; renewable and non-renewable resources; Sustainable Development Goals (SDGs); environmental challenges and conservation practices with emphasis on responsible resource utilization in textile industries.

UNIT II – Environmental Pollution and Sustainable Textile Manufacturing

Air, water, soil, noise, thermal and solid waste pollution; causes, effects and control measures; climate change, global warming, ozone depletion, carbon footprint and environmental health;

textile processing and its environmental impacts including wastewater, dyes, chemicals, air emissions and solid waste; cleaner production, green chemistry, water conservation, recycling, circular economy, sustainable fibres, eco-labelling, environmental compliance and environmental legislations including the Environment (Protection) Act, Water Act and Air Act.

UNIT III – Environmental Management and Industrial Sustainability

Environmental Impact Assessment (EIA); Environmental Management System (ISO 14001); environmental auditing; life cycle assessment (LCA); resource efficiency and energy conservation; renewable energy; wastewater treatment principles; Zero Liquid Discharge (ZLD); occupational health, safety and environmental management; ESG concepts; Extended Producer Responsibility (EPR); environmental reporting; sustainability initiatives in textile, apparel and technical textile industries.

UNIT IV – Fundamentals of Disaster Management

Concepts of hazard, vulnerability, risk, resilience and disaster management; disaster management cycle; classification of disasters—natural, biological, technological and industrial; earthquakes, floods, cyclones, droughts, landslides, heat waves, pandemics, chemical and fire accidents; disaster preparedness, mitigation, response, recovery and rehabilitation; institutional framework including NDMA, SDMA, DDMA, NDRF and SDRF; disaster preparedness plans for educational institutions and industries.

UNIT V – Industrial Safety, Disaster Risk Reduction and Community Resilience

Industrial hazards in textile manufacturing; chemical storage and handling; fire prevention and fire-fighting systems; emergency preparedness and evacuation procedures; first aid, CPR and workplace safety; business continuity planning; disaster risk reduction strategies; GIS and early warning systems; community participation; occupational health and safety standards; case studies on industrial disasters, chemical accidents, floods, cyclones and textile factory safety management.

REFERENCES

1. Bharucha, E. (2021). *Textbook of environmental studies for undergraduate courses* (3rd ed.). Universities Press.
2. Government of India. (2005). *Disaster Management Act, 2005*. Ministry of Law and Justice.
3. National Disaster Management Authority. (2023). *National disaster management plan*. Government of India.
4. Rajagopalan, R. (2022). *Environmental studies: From crisis to cure* (4th ed.). Oxford University Press.
5. United Nations. (2015). *Transforming our world: The 2030 Agenda for Sustainable Development*. United Nations.
6. University Grants Commission. (2023). *Curriculum and credit framework for undergraduate programmes*. University Grants Commission.
7. United Nations Environment Programme. (2021). *Making peace with nature: A scientific blueprint to tackle the climate, biodiversity and pollution emergencies*. UNEP.

COURSE OBJECTIVES

1. To develop knowledge and skills in designing, drafting, and grading patterns for men's and women's garments.
2. To provide practical exposure to pattern development techniques and size grading for apparel production.
3. To enable students to apply draping techniques for creating garment components and fashion designs

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the principles of pattern drafting, grading, and draping used in garment design and production.	Understand
CO 2	Draft and grade patterns for women's garments such as nighties, salwar-kameez, blouses, and skirts using standard measurements.	Apply
CO 3	Develop and grade patterns for men's garments including knickers, formal shirts, and formal trousers.	Apply
CO 4	Apply draping techniques to create bodices, collars, yokes, cowls, and skirts on dress forms.	Apply
CO 5	Create and evaluate garment patterns and draped designs for fit, aesthetics, functionality, and apparel production requirements.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	-	-	-	M	M
2	M	M	-	M	S
3	M	M	-	M	S
4	M	M	-	S	S
5	S	M	M	S	S

LIST OF EXPERIMENTS:

1. Designing, drafting and grading for women's wear:
 - i. Nighty
 - ii. Salwar and kameez
 - iii. Blouse
 - iv. Skirt and top
1. Developing pattern and grading for Men's wear
 - i. Knicker
 - ii. Formal shirt
 - iii. Formal trouser

2. Draping:

- i. Basic bodice – Front and Back
- ii. Cowl
- iii. Yoke
- iv. Collar
- v. Skirt

REFERENCES:

1. Helen Joseph, Armstrong, “Patternmaking for Fashion Design”, Pearson Education Pte. Ltd., 2005.
2. Martin M Shoben, Patrick J Taylor & Nelson Thomas, “Grading for the fashion Industry”, LCFS Fashion Media revised edition, 2004.
3. Gerry Cooklin, “Pattern Grading for women’s clothes”, Black well science Ltd., U.K., 1990, 1991 & 1992.

COURSE OBJECTIVES

1. To develop knowledge and skills in designing, drafting, and constructing garments for children, women, and men.
2. To provide practical experience in pattern development, garment assembly, fitting, and finishing techniques.
3. To enable students to create functional and aesthetically appealing apparel products suitable for different age groups and end-use requirements.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the principles of garment design, pattern drafting, construction, and finishing for children's, women's, and men's apparel.	Understand
CO 2	Draft patterns and construct children's garments such as bibs, jablas, rompers, and A-line frocks using standard measurements.	Apply
CO 3	Design, draft, and construct women's garments including skirts, tops, salwars, kameez, and saree blouses.	Apply
CO 4	Develop patterns and construct men's garments such as shirts, trousers, and waistcoats with appropriate fit and finishing.	Apply
CO 5	Create and evaluate complete garments with suitable design features, fit, functionality, aesthetics, and construction quality.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	-	-	-	M	M
2	M	M	-	M	S
3	M	M	-	M	S
4	M	M	-	M	S
5	S	M	M	S	S

LIST OF EXPERIMENTS:

- Designing, Drafting and constructing the following garments with the design features.
 1. Children's apparel:
 - a. Bib and Jabla
 - b. Romper
 - c. A- line frock
 2. Women's apparel
 - a. Skirt and top
 - b. Salwar
 - c. Kameez
 - d. Saree Blouse

3. Men's apparel
 - a. Shirt
 - b. Trouser
 - c. Waist coat

REFERENCES:

1. Zarakar, K.R., System of Cutting, Navneet Publications, India.
2. Mary Mathews, Practical clothing construction Part-I "Basic Sewing Processes"
3. Mary Mathews, Practical clothing construction Part-II "Designing, Drafting and Tailoring"
4. Winifred Aldrich (2009), "Metric Pattern Cutting for Children's Wear and Baby Wear", Wiley Blackwell Publications, UK, 4th Edition.
5. Padmavathi B, "Techniques of Drafting & Pattern Making, Garments for Kids & Adolescents", Atlantic Publishers & Distributors P Ltd.
6. Anita Tyagi (2012), Handbook of fashion Technology, Sonali Publications, New Delhi.
7. Nancy J. S. Langdon and Sabine Pollehn (2010), Sewing Clothes Kid;s Love, Creative Publishing International Inc. USA.
8. Peg Couch (2011), Garment Construction: A Complete course on making clothing for fit and Fashion, Fox Chapel Publishing. USA.
9. Samantha Me Nes (2005), Baby Couture, K.P. Books, USA.

COURSE OBJECTIVES

1. To provide practical knowledge of textile wet processing operations including preparation, dyeing, and printing of textile materials.
2. To develop skills in applying different classes of dyes and printing techniques on various textile fibres and fabrics.
3. To enable students to evaluate processing efficiency and produce aesthetically appealing and quality textile products.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the principles and objectives of preparatory, dyeing, and printing processes used in textile wet processing.	Understand
CO 2	Perform desizing, scouring, bleaching, and evaluate the effectiveness of preparatory treatments on cotton fabrics.	Apply
CO 3	Apply suitable dyeing techniques using direct, reactive, disperse, acid, and basic dyes on different textile fibres and fabrics.	Apply
CO 4	Carry out textile printing techniques such as direct printing, batik, block printing, and stencil printing to develop decorative textile products.	Apply
CO 5	Analyze and evaluate the quality, colour effects, and performance of dyed and printed textile materials.	Evaluate

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	-	-	-	M	M
2	M	M	-	M	M
3	M	M	-	M	S
4	M	M	-	M	S
5	S	S	M	M	S

LIST OF EXPERIMENTS:

1. Desizing and Scouring of cotton fabric and evaluation of its efficiency
2. Bleaching of cotton fabric using universal bleaching agent.
3. Dyeing of cotton fabric with direct dyes
4. Dyeing of cotton fabric using Reactive dyes – a) Hot b) Cold.
5. Dyeing of polyester fabric using disperse dyes.
6. Dyeing of silk yarn/fabric with acid dyes.
7. Dyeing of acrylic/wool yarn using basic dyes
8. Dyeing of cotton fabric using –Tie & dye techniques.
9. Printing of cotton fabric on direct style with screen printing method.
10. Printing of cotton/polyester fabric by digital printing/sublimation printing machine.
11. Batik/Block printing on cotton fabric

12. Printing of cotton fabric by stencil technique a) positive b) negative

REFERENCES:

1. Shenai, V. A. (1995). Technology of Textile Processing - Vol. III Technology of Bleaching and Mercerising. Mumbai: Sevak Publications.
2. Shenai, V. A. (2000). Technology of Dyeing. Mumbai: Sevak Publications
3. Arora, A. (2011). Textbook of Dyes. New Delhi: Sonali Publications.
4. Kapoor, Seema. (2012). Dyeing of Textile material. New Delhi: Sonali Publication.

COURSE OBJECTIVES

1. To provide knowledge of apparel merchandising, marketing, sourcing, and supply chain management practices in the textile and apparel industry.
2. To develop an understanding of the roles and responsibilities of merchandisers in product development, sampling, approvals, vendor management, and order execution.
3. To equip students with skills in marketing research, sourcing decisions, and supply chain strategies for effective business operations.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the concepts, functions, and processes involved in apparel merchandising, export merchandising, and buying house operations.	Understand
CO 2	Describe the role of merchandisers in sampling, approvals, production planning, vendor evaluation, and order management.	Understand
CO 3	Analyze marketing concepts, consumer behavior, marketing mix, and market research techniques relevant to apparel business.	Analyse
CO 4	Evaluate sourcing methods, supply chain strategies, warehousing systems, and technology applications such as barcoding and RFID.	Evaluate
CO 5	Develop solutions for merchandising, sourcing, and marketing challenges using appropriate business and research tools.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	M	-	M	M	M
2	M	-	M	S	M
3	M	M	M	M	S
4	S	S	M	M	S
5	S	S	M	S	S

UNIT I

Merchandising: Definition – functions - division - role and responsibilities. Types of buyers - communications with the buyers – awareness of current market trends – product development – tech pack analysis - order confirmation process. Export Merchandising. Classification of exporters: Manufacturer, Merchant, Job worker (CM/CMT). Introduction to buying house.

UNIT II

Merchandiser's Role: Proto type to production model – samples, types of samples, sampling procedures, production planning, vendor based rationalization, order placement, in-house and sub- contractor units. Approval: types of approval, approval procedure, buyer approval and organizational approval. Record maintenance. Vendor evaluation and rating.

UNIT III

Marketing: Fashion consumer typologies, Maslow's hierarchy of needs, 4 P's, SWOT analysis, marketing research process, importance of marketing. Marketing mix – pricing,

product and brand distribution channels. Market size, structure and environment.

UNIT IV

Marketing Research: Definition, role in apparel business, use of research findings for marketing decisions and action plans. Marketing research techniques – translation of business and marketing problems into research issues and design, survey design, data types and collection methods, sample design and statistical inference. Model building and analysis methods.

UNIT V

Sourcing: Definition, types and methods of sourcing. Sourcing decision in practice – Bought out component.

Supply Chain Management: Introduction and benefits. Push/pull concepts. Supply Chain strategies. Use of barcoding and RFID. **Warehousing:** Introduction, types and importance.

TEXT BOOKS:

1. Merchandising- Theory, Principles and Practice Grace I. Kunz II Edition, Fairchild Publications, Inc. New York. 2005
2. Fashion Marketing by Easey M(Ed), Blackwell Science 1994.
3. Jeremy A Rosenau & David Wilson, “Apparel Merchandising: the Line Starts Here”, Fairchild Books, 3rd Edition, 2014.
4. Ruth E Glock & Grace I Kunz, “Apparel Manufacturing: Sewn Product Analysis”, Pearson / Prentice Hall Inc. 4th Edition, 2005
5. Frances Harder, “Fashion for Profit”, Harder Publication, 10th Edition, 2014.
6. Elaine Stone, Jean A Samples, "Fashion Merchandising", McGraw Hill, 5th Edition. 1990.

REFERENCES:

1. Mike Easey. .March (2009).”Fashion marketing” 3rd Edition, Edited by, ISBN 13:9781405/39533.
2. Tim Jackson and David show (2009) Mastering Fashion marketing

COURSE OBJECTIVES

1. To provide knowledge of sustainable fashion principles, environmental impacts of the fashion industry, and responsible production practices.
2. To develop an understanding of circular economy concepts and their application in textile and apparel value chains.
3. To equip students with skills to evaluate and develop sustainable fashion products, business models, and circular design strategies.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the concepts, principles, and importance of sustainable fashion and circular economy.	Understand
CO 2	Analyze the environmental and social impacts of textile and apparel production and consumption.	Analyse
CO 3	Evaluate sustainable materials, manufacturing processes, certifications, and supply chain practices.	Evaluate
CO 4	Apply circular economy principles in fashion product development, waste management, and business models.	Apply
CO 5	Develop sustainable and circular fashion solutions considering environmental, social, and economic sustainability.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	M	M	-	-	M
2	S	S	M	M	M
3	S	S	M	M	M
4	S	S	M	M	S
5	S	S	S	S	S

UNIT I – Introduction to Sustainable Fashion

Concept and importance of sustainability – Triple Bottom Line (People, Planet, Profit) – Sustainable Development Goals (SDGs) – Environmental and social impacts of the fashion industry – Fast fashion versus slow fashion – Sustainable fashion movements – Ethical fashion and responsible consumption – Sustainable fashion value chain.

UNIT II – Sustainable Materials and Manufacturing

Sustainable fibres: Organic cotton, hemp, bamboo, linen, recycled polyester, regenerated cellulosic fibres – Eco-friendly dyes and chemicals – Water and energy conservation in textile processing – Cleaner production techniques – Sustainable manufacturing practices – Green certifications and standards (GOTS, OEKO-TEX, Fair Trade, Bluesign) – Carbon and water footprint in textiles.

UNIT III – Circular Economy in Fashion

Introduction to circular economy – Linear versus circular production systems – Principles of circular fashion – Design for durability, repairability, recyclability, and disassembly – Closed-loop and open-loop recycling – Textile waste management – Upcycling and downcycling – Extended Producer Responsibility (EPR) – Circular business models in fashion.

UNIT IV – Sustainable Fashion Business and Supply Chain

Sustainable sourcing and procurement – Traceability and transparency in supply chains – Ethical labour practices and social compliance – Sustainable merchandising and retailing – Fashion rental, resale, repair, refurbishment, and sharing economy – Sustainable packaging and logistics – Green marketing and consumer awareness.

UNIT V – Emerging Trends and Innovations

Digital fashion and virtual garments – AI and technology for sustainability – Smart materials and biodegradable textiles – Life Cycle Assessment (LCA) – Circular design strategies – Sustainable entrepreneurship in fashion – Case studies of global and Indian sustainable fashion brands – Future trends in circular fashion and regenerative fashion systems.

REFERENCES:

1. R. S. Khurmi & J. K. Gupta (2019). A Textbook of Environmental Studies. S. Chand Publishing.
2. Anubha Kaushik & C. P. Kaushik (2021). Perspectives in Environmental Studies (7th ed.). New Age International Publishers.
3. M. L. Jhingan (2020). The Economics of Development and Planning. Vrinda Publications. (Useful for sustainable development and circular economy concepts.)
4. Meenu Srivastava (2018). Textiles and Environment. CBS Publishers & Distributors.
5. Roshan Paul (Ed.). (2015). Functional Finishes for Textiles: Improving Comfort, Performance and Protection. Woodhead Publishing. (Includes sustainable textile processing concepts.)
6. A.K. Sarkar (2019). Textile Science and Technology. CBS Publishers & Distributors.
7. V. K. Kothari (Ed.). (2019). Progress in Textiles: Science and Technology. IAFL Publications. (Contains chapters on sustainability and eco-friendly textiles.)

COURSE OBJECTIVES

1. To provide knowledge of fibre, yarn, fabric and apparel testing methods used for quality evaluation in the textile and apparel industry.
2. To develop the ability to analyze and interpret testing results for assessing the performance and quality characteristics of textile materials and garments.
3. To impart knowledge of inspection systems, quality standards and defect analysis for ensuring quality assurance in textile and apparel production.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the principles, instruments and methods used for fibre testing and evaluation.	Understand
CO 2	Apply yarn testing techniques to determine count, twist and tensile properties of yarns.	Apply
CO 3	Analyze fabric performance characteristics through standard testing procedures.	Analyze
CO 4	Evaluate apparel quality using seam, component and dimensional stability testing methods.	Evaluate
CO 5	Assess textile and apparel quality through inspection systems, AQL standards and defect analysis.	Evaluate

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	S	M	-	-	M
2	S	S	M	M	M
3	S	S	M	S	M
4	M	S	S	S	M
5	M	S	M	S	S

UNIT I

Fibre Testing: Fibre properties - Fibre length: Staple length Span length – Hand stapling method, Baer sorter, Fibro graph. Fibre trash analyzer. Fibre strength – Stelometer, Pressley tester. Fibre fineness: Airflow principle, Micronaire testers. Maturity. Moisture content - regain and RH % determination. Measurement of fibre crimp- HVI and AFIS.

UNIT II

Yarn Testing: Numbering systems: Direct system, indirect system and yarn Count Determination, Twist and its measurement-Twist construction, principle of twist measurement for single- corded yarns. Tensile testing of yarn: Constant Rate of Elongation, Constant Rate of Loading and Constant Rate of Traverse, Lea strength tester - Factors influencing tensile testing of yarns, Tenacity, elongation% & CSP.

UNIT III

Fabric Testing: EPI, PPI, strength: tensile, tearing and bursting - GSM, thickness, shrinkage, abrasion, crease recovery, pilling, stiffness, drapability, thermal resistance, air and water permeability, water repellency - Objective evaluation of fabric handle – KES and FAST systems.

UNIT IV

Apparel Testing: Strength Testing: Loop and Knot Strength test for sewing threads – Seam Strength – Seam Slippage - Seam Severance – button strength – Snap - Zipper Strength. Spirality test for knitted garments - Evaluation of Interlinings Quality - Apparel Dimensional Stability Testing.

UNIT V

Fabric and Apparel Inspection: Definition –stages of inspection: Raw material - In-process inspection - Final inspection - Types: Fabric inspection, 4-point system, 10-point system, 100% inspection, Zero inspection and Statistical sampling – AQL standards. Fabric defects – Pre-sewing defects - Sewing defects - Post sewing defects - causes and remedies.

TEXT BOOKS:

1. Grover & Hamby. (1969). “Hand book of Textile Testing and quality Control”. New Delhi: Wiley Eastern P Ltd.
2. Bhardwaj & Pradip V Mehta. (1998). “Managing Quality in Apparel Industry”. New Delhi: New Age International Publishers.
3. Solinger, Jaccob. (1993). “Apparel Manufacturing Hand book”, New Delhi: Prentice Hall of India.

REFERENCES:

1. Pradip V Mehta. (1992). “An Introduction of Quality control for the Apparel Industry”, New York: ASQC quality press, Marcel Dekker Inc.

COURSE OBJECTIVES

1. To familiarize students with standard textile testing methods used for evaluating fabric quality and performance.
2. To develop practical skills in testing physical, mechanical, comfort, and colour fastness properties of textile materials.
3. To enable students to analyze fabric and garment defects and assess quality using standard inspection systems.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the principles and significance of textile testing and quality evaluation procedures.	Understand
CO 2	Perform tests to determine physical and mechanical properties such as GSM, thickness, stiffness, crease recovery, tensile, tearing, and bursting strength.	Understand
CO 3	Evaluate fabric performance through colour fastness, dimensional stability, pilling, and moisture management tests.	Analyse
CO 4	Analyze fabric quality using standard fabric inspection systems such as 4-point and 10-point systems.	Evaluate
CO 5	Assess garment defects and recommend suitable corrective measures to improve product quality.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	-	-	-	M	M
2	M	M	-	M	M
3	S	M	M	M	M
4	M	M	M	S	M
5	S	M	M	M	S

LIST OF EXPERIMENTS:

1. Determination of Trash Content in Raw Cotton Using a Trash Analyzer
2. Assessment of Fibre Properties Using a High Volume Instrument (HVI)
3. Measurement of Single Yarn Strength
4. Measurement of Yarn Evenness and Imperfections Using a Yarn Evenness Tester
5. Measurement of Fabric Thickness and Stiffness
6. Measurement of Fabric GSM and Crease Recovery
7. Measurement of Fabric Tensile Strength (Strip Test and Grab Test)
8. Measurement of Fabric Bursting Strength and Tearing Strength
9. Assessment of Fabric Abrasion Resistance and Pilling Resistance

10. Assessment of Colour Fastness to Rubbing and Washing
11. Analysis of Garment defects.

REFERENCES:

1. Saville B.P.(1999). “Physical Testing of Textiles”.1st Edition. Woodhead Publishing
2. Grover & Hamby.(1969).“Hand book of Textile Testing and quality Control”, New Delhi, Wiley Eastern.P Ltd.

COURSE OBJECTIVES

1. To develop creative and technical skills in apparel design, motif development, pattern drafting, grading, and marker planning.
2. To provide practical knowledge of garment design and pattern development for children's, women's, and men's apparel.
3. To enable students to create design-oriented apparel products by integrating fashion design principles with pattern engineering techniques.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the principles of apparel design, motif development, pattern drafting, grading, and marker planning.	Understand
CO 2	Create motifs and fashion illustrations for children's, women's, and men's wear based on design requirements.	Create
CO 3	Develop patterns and perform grading for various garments such as baby frocks, T-shirts, shirts, trousers, skirts, tops, blouses, and party wear.	Apply
CO 4	Prepare efficient marker plans and analyze material utilization for apparel production.	Analyse
CO 5	Design and develop innovative apparel products through a design-oriented project by integrating creativity and technical skills.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	-	-	-	M	M
2	M	M	-	M	S
3	M	M	-	M	S
4	M	S	-	M	M
5	S	S	M	S	S

LIST OF EXPERIMENTS:

1. Designing of Motif.
2. Designing 2D silhouettes for Children's, Women's and Men's wear.
3. Development of motif for screen printing.
4. Pattern drafting and grading for Baby frock.
5. Pattern drafting, grading and marker plan for T- Shirt.
6. Pattern drafting, grading and marker plan for Formal shirt.
7. Pattern drafting, grading and marker plan for Trouser.
8. Pattern drafting, grading and marker plan for Skirt and Top's.
9. Pattern drafting, grading and marker plan for Blouse.

10. Pattern drafting, grading and marker plan for Women's Party wear.
11. Design Oriented Project.

REFERENCES:

1. Groover, M. P. & Zimmer, E. W. (1998). CAD / CAM Computer Aided Design and Manufacturing. New Delhi: Prentice hall of India.
2. Bezant, C. E. & Horwood, Ellis. (1983). Computer Aided Design and Manufacture. England.
3. Aldrich, Winfred. (1994). CAD in Clothing and Textiles. USA: Blackwell science.
4. Taylor, P. (1990). Computers in Fashion Industry. Heinemann publications.
5. Buchanan & Grady, C. (1995). Automation in the Textile Industry from Fibres to Apparels. UK: The Textile Institute.
6. Donald, D. Voisinet. (1987). Computer Aided Drafting and Design – Concept and Application. McGraw Hill Education

COURSE OBJECTIVES

1. To develop creative, technical, and presentation skills required for professional fashion portfolio development.
2. To enable students to integrate trend forecasting, design development, fabric selection, pattern making, and garment construction into a cohesive fashion collection.
3. To prepare students for professional fashion presentations through portfolio preparation and garment exhibition.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the concepts of trend forecasting, theme development, customer profiling, and portfolio presentation in fashion design.	Understand
CO 2	Develop theme boards, mood boards, colour boards, inspiration boards, and design development boards based on market and customer requirements.	Create
CO 3	Prepare professional fashion portfolio components including illustrations, flat sketches, specification sheets, fabric boards, and accessory boards.	Apply
CO 4	Analyze fabric sourcing, garment construction processes, and design feasibility for apparel collection development.	Analyse
CO 5	Create and present a complete fashion collection and portfolio through a designer show or garment exhibition.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	-	-	-	M	M
2	M	M	-	M	S
3	M	M	-	M	S
4	M	S	M	M	M
5	S	S	M	S	S

LIST OF EXPERIMENTS

1. Designer profile
2. Trend Forecasts
3. Theme board
4. Creation of Mood board
5. Inspiration board
6. Colour board
7. Accessory Board
8. Theme Write Up.
9. Customer profile

10. Design development board
11. Fabric board
12. Spec sheet
13. Fabric sourcing and costing
14. Pattern Making and Garment Construction board
15. Flat presentation
16. Illustration with Back Drops
17. Final presentation
18. Designer show/ Garment exhibition (Four garments)

COURSE OBJECTIVES

1. To provide students with practical exposure to industrial operations, technologies, and professional practices in the textile and apparel sector.
2. To develop technical, analytical, communication, and teamwork skills through hands-on industrial training.
3. To enable students to apply classroom knowledge to real-world industrial problems and prepare professional internship reports.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the organizational structure, workflow, and operational practices of the industry where the internship is undertaken.	Understand
CO 2	Apply theoretical knowledge and technical skills to perform assigned tasks in the industrial environment.	Apply
CO 3	Analyze industrial processes, machinery, quality requirements, and workplace practices relevant to the profession.	Analyse
CO 4	Demonstrate professional ethics, teamwork, safety awareness, and responsibility in the workplace.	Apply
CO 5	Prepare and present a comprehensive internship report highlighting observations, learning experiences, and recommendations.	Evaluate

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	M	M	-	M	M
2	M	M	-	S	M
3	S	S	M	M	M
4	S	M	S	S	M
5	M	M	M	M	S

- The students individually undergo training in reputed firms/ research institutes / laboratories for the specified duration. After the completion of training, a detailed report should be submitted within ten days from the commencement of next semester. The students will be evaluated as per the Regulations

COURSE OBJECTIVES

1. To provide knowledge of budgeting, costing principles, pricing methods, and garment cost estimation techniques used in the apparel industry.
2. To develop skills in calculating garment costs and analyzing factors influencing production and pricing decisions.
3. To familiarize students with export procedures, documentation, international trade practices, and export market requirements.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the concepts of budgeting, costing, depreciation, pricing policies, and garment cost determinants.	Understand
CO 2	Calculate garment costs by considering material, labour, overheads, trims, and production-related factors.	Apply
CO 3	Analyze costing methods, pricing strategies, and export market selection criteria for apparel products.	Analyse
CO 4	Evaluate export procedures, legal requirements, financing options, and international trade practices.	Evaluate
CO 5	Prepare and interpret export documents and apply appropriate trade terms for international business transactions.	Evaluate

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	M	-	-	-	M
2	M	M	-	M	M
3	S	M	M	M	S
4	S	M	S	M	S
5	M	M	S	M	S

UNIT I

Budgeting and Principles of costing: Budgeting – aims of Budgeting, types of budget. Costing - aims of costing, Elements of cost – Material cost, Labour cost and overheads, difference between budgeting and costing. Depreciation cost – reasons and methods of calculating depreciation. Pricing policies, Factors influencing pricing. Pricing Methods - Full- cost pricing, Marginal cost pricing.

UNIT II

Costing of garments: Cost determinants - Raw material to finished product - cutting, making and trim cost (CMT) - lot size and design affecting cost. Cost of bought out components - Thread, button, zipper and interlining.

UNIT III

Costing Practices - Costing methods, Cost estimation bulk production. Cost calculation by interpreting Specification sheet Practical cost calculation for Ladies, Men's and Children's wear – woven and knitted.

UNIT IV

Selecting export markets: country identification, risk evaluation, pre-shipment export finance – role of commercial banks. Difference between foreign trade and domestic trade-legal requirements for exporting - IE code number definition – registration with sales tax department, central excise department and export promotion councils / commodity boards.

UNIT V

Export Document: Importance, terms of payment: Letter of credit – documentary collection – open account. Terms of shipment – Incoterms - essential elements of an export contract, different types of invoices, bill of lading, packing list, inspection certificates, delivery instructions and delivery orders, drafts of payment, letters of credit, negotiation of documents – action in the event of discrepancies. Online documentation. International trade policy

TEXT BOOKS

1. Charles T. Horngren.(2001).”Introduction to Management Accounting, Prentice Hall. New Delhi.
2. M. I.Mahajan.(2007). “Export Policy, Procedures and Documentation”, , Mumbai:Snow-white Publishers
3. Thomas E. Johnson and Donna L. Bade(2010) Export/Import Procedures and Documentation,

REFERENCES:

1. Levi.(1997)International Finance, Tata McGraw-Hill,.
2. R. Narayanaswamy, Financial Accounting – A Managerial Perspective, Prentice Hall India Pvt. Ltd.,New Delhi,1997.
3. S. K. Bhattacharya & John Dearden, (2000) “Accounting for Management Text and Cases,” Vikas Publishing House, New Delhi, Ministry of Commerce, Govt. of India.

COURSE OBJECTIVES

1. To provide knowledge of entrepreneurship concepts, entrepreneurial processes, business planning, and venture creation.
2. To develop entrepreneurial skills in opportunity identification, creativity, innovation, and business decision-making.
3. To familiarize students with institutional support systems, funding sources, and entrepreneurial opportunities in the fashion and apparel industry.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the concepts, theories, characteristics, and processes of entrepreneurship and entrepreneurial development.	Understand
CO 2	Analyze entrepreneurial opportunities through idea generation, feasibility studies, project planning, and business plan development.	Analyse
CO 3	Apply creativity, innovation, and problem-solving techniques for establishing and managing entrepreneurial ventures.	Apply
CO 4	Evaluate the role of financial institutions, government policies, venture capitalists, angel investors, and support organizations in business development.	Evaluate
CO 5	Develop entrepreneurial strategies and business models for fashion and apparel enterprises by integrating market opportunities and institutional support.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	M	-	M	-	M
2	S	M	M	M	M
3	M	M	M	S	M
4	S	M	S	M	M
5	S	S	M	S	S

UNIT I – Entrepreneurship Fundamentals

Entrepreneurship: Concept, characteristics, functions and types of entrepreneurs – Entrepreneurial competencies and skills – Internal and external factors influencing entrepreneurship – Entrepreneurial motivation and barriers – Theories of entrepreneurship – Entrepreneurial culture and ecosystem – Stages in the entrepreneurial process – Opportunities in fashion and textile entrepreneurship.

UNIT II – Creativity, Innovation and Business Planning

Creativity and innovation in entrepreneurship – Idea generation techniques – Opportunity identification and screening – Design thinking and creative problem solving –

Feasibility analysis (technical, market, financial and operational) – Preparation of business plans – Business model development – Project planning, evaluation, monitoring and control – Innovation and value creation in fashion enterprises.

UNIT III – Fashion Business Models and Startup Ecosystem

Fashion entrepreneurship and emerging business models – Direct-to-consumer (D2C), Omni channel retailing and e-commerce – Digital marketing strategies for fashion brands – Social media marketing and influencer marketing – Institutional support for startups – Government schemes and startup initiatives – Angel investors, incubators, accelerators and private equity funding – Intellectual Property Rights (IPR) and brand protection.

UNIT IV – Venture Creation and Enterprise Management

Family and non-family businesses – Professional management in entrepreneurial ventures – Women entrepreneurship and social entrepreneurship – Venture capital: concept, process and funding stages – Sources of finance for startups and MSMEs – Leadership, team building and organizational culture – Risk management and sustainability in fashion enterprises.

UNIT V – Support Institutions and Contemporary Entrepreneurship

Role of support institutions in entrepreneurship development – MSME ecosystem and government support agencies – DIC, SIDCO, SIDBI, NSIC, NIESBUD, SFC, TIIC and Startup India initiatives – Unicorn startups and emerging entrepreneurial trends – Sustainable and circular fashion entrepreneurship – Case studies of successful fashion, textile and apparel startups in India and abroad.

TEXT BOOKS

1. Khanka, S. S. (2022). *Entrepreneurial Development* (Latest Edition). S. Chand Publishing, New Delhi.
2. Gupta, C. B., & Srinivasan, N. P. (2021). *Entrepreneurial Development*. Sultan Chand & Sons, New Delhi.
3. Desai, V. (2020). *Dynamics of Entrepreneurial Development and Management*. Himalaya Publishing House, Mumbai.
4. Hisrich, R. D., Peters, M. P., & Shepherd, D. A. (2023). *Entrepreneurship* (12th Edition). McGraw-Hill Education.
5. Mariotti, S., & Glackin, C. (2022). *Entrepreneurship and Small Business Management* (Latest Edition). Pearson Education.

REFERENCE BOOKS

1. Balaraju, T., & Ramakrishna, H. (2021). *Entrepreneurship Development*. Himalaya Publishing House, Mumbai.
2. Kuratko, D. F. (2023). *Entrepreneurship: Theory, Process and Practice* (12th Edition). Cengage Learning.
3. Barringer, B. R., & Ireland, R. D. (2023). *Entrepreneurship: Successfully Launching New Ventures* (7th Edition). Pearson.

SEMESTER VII

26BSTX71

RESEARCH METHODOLOGY AND IPR

L	T	P	C
4	0	0	4

COURSE OBJECTIVES

1. To provide knowledge of entrepreneurship concepts, entrepreneurial processes, business planning, and venture creation.
2. To develop entrepreneurial skills in opportunity identification, creativity, innovation, and business decision-making.
3. To familiarize students with institutional support systems, funding sources, and entrepreneurial opportunities in the fashion and apparel industry.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the concepts, processes, and ethical principles of scientific research and intellectual property rights.	Understand
CO 2	Apply appropriate research designs, sampling methods, and data collection techniques for research studies.	Apply
CO 3	Analyze research data and interpret findings using suitable statistical and analytical tools.	Analyse
CO 4	Evaluate different forms of intellectual property and their applications in research, innovation, and industry.	Evaluate
CO 5	Prepare research reports and recommend suitable IPR protection strategies for innovative products and technologies.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	M	-	S	-	M
2	M	M	M	M	M
3	M	M	M	M	S
4	S	M	S	M	M
5	S	M	S	M	S

UNIT I – Introduction to Research Methodology

Research: Meaning, objectives, significance, and types – Basic, applied, descriptive, exploratory, and experimental research – Research process – Identification and formulation of research problems – Research objectives and hypotheses – Variables and measurement – Review of literature – Research ethics and plagiarism.

UNIT II – Research Design and Data Collection

Research design: Meaning and types – Sampling techniques: Probability and non-probability sampling – Sources of data – Primary and secondary data – Methods of data collection:

Observation, interview, questionnaire, survey, schedules, and case study – Questionnaire design – Scaling techniques – Reliability and validity.

UNIT III – Data Analysis and Research Report Writing

Data processing and analysis – Classification, tabulation and graphical presentation of data – Descriptive statistics: Mean, median, mode, standard deviation – Correlation and regression – Hypothesis testing – t-test, Chi-square test, F-test and One-way ANOVA – Interpretation of results – Use of statistical software (Excel/SPSS) for research analysis – Structure of research report – Technical paper writing – Thesis/dissertation preparation – Citation and referencing styles (APA, MLA and IEEE).

UNIT IV – Fundamentals of Intellectual Property Rights

Introduction to Intellectual Property Rights – Need and importance of IPR – Types of Intellectual Property: Patents, Copyrights, Trademarks, Industrial Designs, Geographical Indications, Trade Secrets – National and international IPR systems – Role of IPR in innovation, entrepreneurship, and economic development.

UNIT V – Patents and IPR Management

Patent system in India – Patentability criteria – Patent application procedure – Patent search and documentation – Patent drafting basics – Copyright registration – Trademark registration process – Protection of textile, fashion, and design innovations – IPR commercialization, technology transfer, licensing, and case studies related to textiles, apparel, and fashion industries.

REFERENCES:

1. Research Methodology: Methods and Techniques, Kothari, C. R., & Garg, G. (2019). Research Methodology: Methods and Techniques (4th ed.). New Age International Publishers.
2. Research Methodology, Paneerselvam, R. (2014). Research Methodology. PHI Learning.
3. Research Methodology, Saravanel, P. (2015). Research Methodology. Kitab Mahal.
4. Intellectual Property Rights, Bouchoux, D. E. (2020). Intellectual Property Rights. Cengage Learning.
5. Intellectual Property Rights, Pandey, N., & Dharni, K. (2022). Intellectual Property Rights. PHI Learning.
6. World Intellectual Property Organization publications on patents, copyrights, trademarks, and innovation management.

COURSE OBJECTIVES

1. To provide fundamental knowledge of management principles and the functional areas of management relevant to industrial organizations.
2. To develop an understanding of human resource, production, marketing, and financial management practices in manufacturing industries.
3. To equip students with managerial skills for effective decision-making, resource utilization, productivity improvement, and organizational performance.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the principles, functions, and theories of management and their application in industrial organizations.	Understand
CO 2	Analyze human resource management practices and their role in organizational effectiveness and industrial relations.	Analyse
CO 3	Apply production planning, inventory control, scheduling, and productivity improvement techniques in industrial operations.	Apply
CO 4	Evaluate marketing strategies, consumer behavior, demand forecasting, and pricing decisions in business environments.	Evaluate
CO 5	Assess financial management practices, budgeting, capital investment decisions, and cost control measures for organizational growth.	Evaluate

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	M	-	M	M	M
2	M	-	S	S	M
3	M	M	M	S	M
4	M	M	M	M	S
5	S	M	M	M	S

UNIT I

Management: Definition, nature and scope of management – Evolution of management thought – Scientific Management, Administrative Management and Human Relations Approach – Management as a science, art and profession – Professionalization of management in India – Functions of management: Planning, Organizing, Staffing, Directing and Controlling – Levels of management – Decision making – Case studies.

UNIT II

Human Resource Management: Introduction – Objectives and functions of HRM – HR policies – Human resource planning – Recruitment, selection and training – Performance appraisal – Compensation and welfare measures – Industrial relations – Role of HR manager – Line and

staff functions – HRM and its interaction with production, marketing and finance departments
– Case studies.

UNIT III

Production and Operations Management: Production systems and types of production – Production planning and control (PPC) – Forecasting – Routing, Scheduling, Loading and Dispatching – Production control functions – Inventory management – Materials management – Gantt charts and network techniques (PERT/CPM) – Productivity improvement – Relationship of production with other functional departments – Case studies.

UNIT IV

Marketing Management: Concept of marketing and marketing management – Marketing environment – Marketing mix (4Ps) – Consumer behaviour – Industrial marketing and service marketing – Market segmentation, targeting and positioning – Marketing research – Demand forecasting – Pricing methods and price determination – Relationship of marketing with production, finance and human resource departments – Case studies.

UNIT V

Financial Management: Introduction to financial management – Financial and cost accounting concepts – Functions and objectives of financial management – Time value of money – Sources of finance – Capital budgeting – Working capital management – Cost control and cost reduction – Profit planning and budgeting – Risk and return relationship – Case studies.

REFERENCES:

1. Principles of Management Tripathi, P. C., & Reddy, P. N. (2020). Principles of Management (6th ed.). McGraw Hill Education India.
2. Management and Organisational Behaviour Rao, P. S. (2021). Management and Organisational Behaviour. Himalaya Publishing House.
3. Human Resource Management Gupta, C. B. (2021). Human Resource Management (20th ed.). Sultan Chand & Sons.
4. Production and Operations Management Panneerselvam, R. (2017). Production and Operations Management (3rd ed.). PHI Learning.
5. Marketing Management Ramaswamy, V. S., & Namakumari, S. (2018). Marketing Management: Indian Context Global Perspective (6th ed.). Sage Publications India.
6. Financial Management Pandey, I. M. (2021). Financial Management (12th ed.). Vikas Publishing House.
7. Financial Management Chandra, P. (2019). Financial Management: Theory and Practice (10th ed.). McGraw Hill Education.
8. Operations Management Aswathappa, K., & Bhat, K. S. (2022). Production and Operations Management. Himalaya Publishing House.

COURSE OBJECTIVES

1. To provide knowledge of the new product development (NPD) process in textiles and apparel from concept generation to commercialization.
2. To develop skills in product design, material selection, prototyping, testing, and performance evaluation.
3. To enable students to assess product feasibility, market acceptance, quality, sustainability, and commercial viability.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the concepts, stages, and significance of new product development in textiles and apparel.	Understand
CO 2	Analyze consumer requirements, market opportunities, and technical specifications for product development.	Analyse
CO 3	Apply product design and development principles for creating textile and apparel products.	Apply
CO 4	Evaluate product performance, quality, feasibility, and market acceptance using appropriate assessment methods.	Evaluate
CO 5	Develop innovative and sustainable textile and apparel products considering technical, economic, and environmental factors.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	-	-	-	M	M
2	M	M	-	M	M
3	M	M	M	S	M
4	S	S	M	M	S
5	S	S	S	S	S

UNIT I – Introduction to New Product Development

Concept of new product development (NPD) – Importance and objectives – Product life cycle – Innovation and creativity in textiles and apparel – Types of new products – Sources of new product ideas – Idea generation techniques – Screening and evaluation of ideas – Consumer needs and market opportunities.

UNIT II – Product Design and Development

Product design process – Design thinking approach – Product specifications and technical requirements – Material selection for textile and apparel products – Product design considerations: aesthetics, functionality, comfort, durability, safety, and sustainability – Prototype development – Sampling and product modification.

UNIT III – Product Assessment and Testing

Product performance evaluation – Physical, mechanical, comfort, and functional testing – Quality standards and specifications – Reliability and durability assessment – Consumer acceptance testing – Product benchmarking – Risk assessment and compliance requirements – Product certification and labeling.

UNIT IV – Commercialization and Market Assessment

Market research for new products – Consumer behavior and preference analysis – Feasibility analysis: technical, financial, and operational – Cost estimation and pricing strategies – Product positioning – Test marketing – Product launch strategies – Branding and promotion of textile and apparel products.

UNIT V – Sustainable and Innovative Product Development

Sustainable product development – Eco-design principles – Circular product development – Smart textiles and wearable products – Technical textile product innovations – Digital product development tools – Case studies of successful textile and apparel product innovations – Entrepreneurship opportunities in product development.

TEXT BOOKS:

1. Product Development in Textiles Nelson, G. L. (Ed.). Product Development in Textiles. Textile Institute Publication.
2. Textiles and Clothing Sustainability Muthu, S. S. (Ed.). Textiles and Clothing Sustainability: Sustainable Fashion and Product Development. Springer.
3. Fashion from Concept to Consumer Frings, G. S. Fashion: From Concept to Consumer. Pearson Education.

REFERENCE BOOKS:

1. The Fundamentals of Product Development for Textiles and Apparel Sorger, R., & Udale, J. The Fundamentals of Fashion Design and Product Development. Fairchild Books.
2. Fashion Entrepreneurship Fashion Entrepreneurship, Retail Business Planning and Product Development. Bloomsbury Publishing.
3. Subramanian Senthilkannan Muthu (Ed.). Sustainable Innovations in Textile Product Development. Springer.

COURSE OBJECTIVES

1. To provide knowledge of functional textiles, smart textiles, intelligent materials, and wearable technologies.
2. To develop an understanding of advanced materials, sensors, actuators, and manufacturing techniques used in smart textile products.
3. To equip students with skills to evaluate, design, and develop innovative smart textile applications for healthcare, sports, defense, and consumer markets.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the concepts, classifications, materials, and emerging trends in functional and smart textiles.	Understand
CO 2	Analyze the properties and applications of advanced functional materials, smart finishes, and responsive textile systems.	Analyse
CO 3	Apply the principles of sensors, actuators, wearable electronics, and energy harvesting technologies in smart textile products.	Apply
CO 4	Evaluate manufacturing processes, integration techniques, testing methods, and quality control requirements for smart textiles.	Evaluate
CO 5	Develop innovative smart textile products for healthcare, sports, protective clothing, and sustainable wearable applications.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	M	M	-	-	M
2	M	S	M	M	M
3	S	M	M	S	M
4	S	S	M	M	S
5	S	S	S	S	S

UNIT I

Fundamentals of Functional and Smart Textiles Introduction to functional textiles and smart textiles – distinction between conventional, functional and intelligent textiles – historical development – generations of smart textiles – passive smart textiles, active smart textiles, ultra-smart textiles – multidisciplinary nature of smart textiles involving textiles, electronics, materials science and design – market size and growth trends – performance requirements – challenges in commercialization – future prospects of intelligent clothing systems.

UNIT II

Advanced Functional Materials and Finishes Conductive fibres and yarns – metallic fibres, stainless steel yarns, silver-coated yarns – carbon fibres and carbon nanotube materials – graphene coated textiles – piezoelectric materials – phase change materials (PCM) for thermo-

regulation – shape memory polymers and alloys – thermochromic, photochromic and electrochromic materials – UV protective finishes – antimicrobial and antiviral finishes – self-cleaning nano-finishes – flame-retardant smart coatings – breathable membrane technologies.

UNIT III

Sensors, Actuators and Wearable Electronics Textile-based sensors for pressure, strain, temperature, humidity and motion detection – biosensors for heart rate, respiration and ECG monitoring – textile electrodes – smart gloves and gesture recognition systems – heating textiles – vibration and haptic feedback systems – flexible printed circuits – RFID and NFC systems in garments – communication modules – batteries and flexible energy storage – solar energy harvesting textiles – safety aspects of wearable electronics.

UNIT IV

Manufacturing and Processing Technologies Integration of conductive elements through spinning, weaving, knitting, braiding and embroidery – e-yarn technology – seamless garment manufacturing – lamination and multilayer composites – conductive inkjet and screen printing – 3D printing on textiles – microencapsulation techniques – plasma treatment for functional surfaces – durability, washability and laundering performance – testing standards for smart textiles – quality control parameters.

UNIT V

Applications and Product Development Healthcare monitoring garments – rehabilitation textiles – sports performance apparel – military camouflage and protective wear – firefighter smart garments – automotive interiors with sensors – smart bedding and home textiles – fashion technology wearables – smart baby care textiles – sustainability concerns in e-textiles – recycling challenges – case studies of global smart textile brands – prototype development methodology.

REFERENCES:

1. Koncar, V. (Ed.). (2016). *Smart textiles and their applications*. Woodhead Publishing.
2. Tao, X. (2001). *Smart fibres, fabrics and clothing*. Woodhead Publishing.
3. Dias, T. (Ed.). (2015). *Electronic textiles: Smart fabrics and wearable technology*. Woodhead Publishing.
4. Mattila, H. R. (Ed.). (2006). *Intelligent textiles and clothing*. Woodhead Publishing.
5. Kothari, V. K. (2019). *Progress in smart and functional textiles*. Textile Association of India.

COURSE OBJECTIVES

1. To provide knowledge of apparel engineering principles, garment performance requirements, and ergonomic clothing design.
2. To develop an understanding of anthropometry, sizing systems, fit analysis, and pattern engineering for diverse consumer groups.
3. To familiarize students with digital apparel technologies, quality evaluation methods, and sustainable engineering practices in garment manufacturing.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain apparel engineering concepts, garment performance parameters, comfort requirements, and ergonomic design principles.	Understand
CO 2	Analyze anthropometric data, sizing systems, body measurements, and grading methods for apparel product development.	Analyse
CO 3	Apply fit analysis and pattern engineering techniques to identify and correct garment fitting problems.	Apply
CO 4	Evaluate the use of digital technologies such as 3D body scanning, virtual prototyping, and AI-based fit systems in apparel engineering.	Evaluate
CO 5	Develop apparel solutions incorporating quality, productivity, sustainability, and consumer fit requirements.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	M	M	-	-	M
2	M	M	-	M	M
3	M	M	M	S	M
4	S	M	M	M	S
5	S	S	M	S	S

UNIT I

Apparel Engineering Fundamentals Apparel engineering concepts – garment performance parameters – ergonomic clothing design – thermal comfort – moisture management – mobility and movement analysis – stress points in garments – protective clothing engineering – engineering design criteria for apparel products.

UNIT II

Anthropometry and Sizing Systems Human body dimensions – static and dynamic anthropometry – measurement tools and procedures – body posture analysis – national and international size charts – Indian body measurement studies – grading systems – plus size and petite sizing – children's sizing – custom measurement systems.

UNIT III

Fit Analysis and Pattern Engineering Elements of good fit – balance, grain, ease and drape – common fit defects in bodice, sleeve, trouser and jackets – correction techniques – fitting sessions – muslin trials – stretch fabric fitting – shapewear engineering – maternity wear fit – adaptive garment fit systems.

UNIT IV

Digital Apparel Technologies Computerized pattern making systems – marker planning – 3D body scanning – digital avatars – virtual try-on systems – CLO 3D / Browzwear applications – AI based size recommendation – mass customization systems – digital sample room – data-driven fit improvement.

UNIT V

Quality, Productivity and Sustainable Engineering Seam performance – seam slippage and puckering – bonding and seamless technologies – productivity improvement in garment plants – line balancing – lean manufacturing basics – fit testing protocols – consumer satisfaction surveys – sustainable garment engineering – waste reduction in pattern cutting.

TEXT BOOKS

1. Patternmaking for Fashion Design Joseph-Armstrong, H. (2021). *Patternmaking for Fashion Design* (6th ed.). Pearson.
2. Apparel Manufacturing Handbook Solinger, J. (1988). *Apparel Manufacturing Handbook*. Van Nostrand Reinhold.
3. Sizing in Clothing Ashdown, S. P. (Ed.). (2007). *Sizing in Clothing: Developing Effective Sizing Systems for Ready-to-Wear Clothing*. Woodhead Publishing.

REFERENCE BOOKS

1. Anthropometry Apparel Sizing and Design Thilagavathi, G., & Vasantha, K. (Eds.). *Anthropometry, Apparel Sizing and Design*. CRC Press.
2. The Technology of Clothing Manufacture Carr, H., & Latham, B. (2008). *The Technology of Clothing Manufacture* (4th ed.). Wiley-Blackwell.
3. 3D Fashion Design Green, T. (2019). *3D Fashion Design: Technique, Design and Visualization*. Bloomsbury Publishing.
4. V. K. Kothari (Ed.). *Progress in Textiles: Science and Technology*. IAFL Publications.
5. G. Thilagavathi & K. Vasantha. *Clothing Comfort, Apparel Sizing and Garment Engineering*.
6. Roshan Paul (Ed.). *Textiles and Clothing: Design, Technology and Innovation*.
7. Subramanian Senthilkannan Muthu (Ed.). *Sustainable Clothing and Textile Engineering*. Springer.

COURSE OBJECTIVES

1. To provide fundamental knowledge of clothing comfort, its dimensions, and the interaction between the human body, clothing, and environment.
2. To develop an understanding of psychological, tactile, thermal, and thermo-physiological comfort characteristics of textile materials and garments.
3. To enable students to evaluate comfort properties and apply comfort-enhancing principles in apparel design and specialized textile products.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the concepts, dimensions, factors, and evaluation methods of clothing comfort in apparel and textile applications.	Understand
CO 2	Analyze psychological and tactile comfort properties of textile materials and their influence on wearer perception.	Analyse
CO 3	Examine thermal comfort mechanisms, heat transfer processes, and thermal properties of fibres and fabrics.	Analyse
CO 4	Apply principles of moisture management and thermo-physiological comfort in the assessment of textile and apparel products.	Apply
CO 5	Develop comfort-oriented apparel solutions by integrating garment fit, ergonomic principles, comfort evaluation techniques, and advanced textile materials.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	S	M	-	-	-
2	M	S	M	-	-
3	S	S	M	M	-
4	M	S	M	S	-
5	M	M	S	S	M

UNIT I – INTRODUCTION TO CLOTHING COMFORT

Concept, definition and significance of clothing comfort; human–clothing–environment interaction; dimensions of comfort including physiological, psychological, tactile, thermal and aesthetic comfort; factors influencing clothing comfort; objective and subjective methods of comfort evaluation; role of clothing comfort in apparel design and product development.

UNIT II – PSYCHOLOGICAL AND TACTILE COMFORT

Psychological aspects of clothing comfort; perception and sensory responses to textile

materials; neurophysiological basis of comfort sensation; fabric hand and handle characteristics; tactile properties including softness, smoothness, stiffness, roughness, prickliness and scratchiness; subjective assessment of tactile comfort.

UNIT III – THERMAL COMFORT

Human thermoregulation; body heat production and heat loss mechanisms; thermal comfort and thermal stress; heat transfer through clothing by conduction, convection, radiation and evaporation; thermal insulation and thermal resistance of textiles; thermal properties of fibres and fabrics; evaluation of thermal comfort.

UNIT IV – MOISTURE MANAGEMENT AND THERMO-PHYSIOLOGICAL COMFORT

Moisture transmission in textiles; water vapour permeability; liquid moisture transport and wicking; air permeability and fabric breathability; clothing microclimate; heat and mass transfer through textile materials; thermo-physiological comfort requirements of activewear, sportswear and functional apparel; assessment of moisture management properties.

UNIT V – GARMENT FIT, COMFORT ASSESSMENT AND APPLICATIONS

Anthropometry and body measurements; relationship between garment fit and comfort; ergonomic considerations in clothing design; wear trials and comfort evaluation techniques; laboratory testing of comfort properties; comfort-enhancing fibres, yarns and fabrics; comfort requirements and applications in sportswear, protective clothing, medical textiles and smart textiles.

TEXT BOOK:

1. A Das, R.Alagirusamy, “Science in clothing comfort”, Woodhead publishing, India ISBN: 978184596789, 2010.
2. G.song, “Improving comfort in clothing”, woodhead publishing services in textiles : 106, ISBN: 184569539, 2011

REFERENCE:

1. Li.Y, “The Science of Clothing Comfort”, Textile Progress, Vol.31, Textile Institute, 2001.
2. Saville B.P, “Physical Testing of Textiles”, The Textile Institute, Wood head Publishing Limited, Cambridge, 2009.
3. Buchanan D.R, “The Science of Clothing Comfort”, Textile Progress, Vol.31,No.1/2, 1999.
4. Ukponmwan .J.O., “The Thermal Insulation Properties of Fabrics”, Textile Progress, Vol.24, No.4, 1992.

SEMESTER VIII

26BSTX81

TOTAL QUALITY MANAGEMENT FOR TEXTILE AND APPAREL INDUSTRY

L	T	P	C
3	0	0	3

COURSE OBJECTIVES

1. To provide knowledge of Total Quality Management (TQM) principles, philosophies, and quality systems applicable to textile and apparel industries.
2. To develop skills in quality planning, quality control, process improvement, and statistical quality techniques.
3. To enable students to implement quality management practices for continuous improvement, customer satisfaction, and sustainable industrial performance.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the principles, philosophies, and quality management systems used in textile and apparel industries.	Understand
CO 2	Analyze quality standards, certifications, and supplier quality requirements for textile and apparel products.	Analyse
CO 3	Apply statistical quality control tools and process improvement techniques to manufacturing processes.	Apply
CO 4	Evaluate quality performance in textile and apparel production using inspection and quality assurance methods.	Evaluate
CO 5	Develop continuous improvement strategies to enhance customer satisfaction, sustainability, and organizational excellence.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	M	-	S	M	M
2	M	M	S	M	M
3	M	M	M	S	M
4	S	M	M	M	S
5	S	S	S	S	S

UNIT I – Fundamentals of Total Quality Management

Quality: Concepts, dimensions and importance – Evolution of quality management – Inspection, Quality Control (QC), Quality Assurance (QA) and Total Quality Management (TQM) – Quality gurus: Deming, Juran, Crosby, Ishikawa and Taguchi – Principles of TQM – Customer focus – Leadership – Employee involvement – Continuous improvement – Cost of quality – Quality culture in textile and apparel industries.

UNIT II – Quality Systems and Standards

Quality management systems – Documentation and quality manuals – ISO 9001 Quality Management System – ISO 14001 Environmental Management System – SA 8000 Social

Accountability – OEKO-TEX standards – WRAP certification – Lean quality systems – Six Sigma concepts – Quality audits – Supplier quality management – Vendor evaluation and rating systems.

UNIT III – Statistical Quality Control and Process Improvement

Statistical Process Control (SPC) – Control charts for variables and attributes – Process capability analysis – Acceptance sampling – Sampling plans – Pareto analysis – Cause and Effect (Fishbone) diagram – Check sheets – Histograms – Scatter diagrams – Failure Mode and Effects Analysis (FMEA) – Root cause analysis – Corrective and preventive actions.

UNIT IV – Quality Management in Textile and Apparel Manufacturing

Quality control in spinning, weaving, knitting, dyeing, printing and finishing – Fabric inspection systems (4-point and 10-point systems) – Garment quality parameters – Process control in cutting, sewing, finishing and packing – In-line and end-line inspections – Defect analysis and quality improvement – Quality requirements of export buyers – Compliance and product safety.

UNIT V – Continuous Improvement and Sustainable Quality Management

Kaizen and continuous improvement – Lean manufacturing principles – 5S workplace management – Benchmarking – Quality circles – Customer satisfaction measurement – Complaint analysis and feedback systems – Sustainability and quality – Quality in circular textile systems – Digital quality management – Industry 4.0 applications in quality assurance – Case studies in textile and apparel industries.

TEXT BOOKS

1. Total Quality Management Besterfield, D. H., Besterfield-Michna, C., Besterfield-Sacre, M., & Besterfield, G. H. (2018). *Total Quality Management* (4th ed.). Pearson Education.
2. Managing Quality Integrating the Supply Chain Foster, S. T. (2021). *Managing Quality: Integrating the Supply Chain* (7th ed.). Pearson.
3. Textile Testing Fibre Yarn and Fabric Kothari, V. K. (Ed.). (2020). *Textile Testing: Fibre, Yarn and Fabric*. IAFL Publications.

REFERENCE BOOKS

1. The Management and Control of Quality Evans, J. R., & Lindsay, W. M. (2020). *The Management and Control of Quality* (10th ed.). Cengage Learning.
2. Quality Planning and Analysis Juran, J. M., & Gryna, F. M. *Quality Planning and Analysis*. McGraw Hill.
3. Quality Management in the Textile Industry Mehta, P. V. *Quality Management in the Textile Industry*. Textile Trade Press.
4. V. K. Kothari (Ed.). *Progress in Textiles: Science and Technology*. IAFL Publications.
5. A. K. Sarkar. *Textile Science and Technology*. CBS Publishers & Distributors.
6. Subramanian Senthilkannan Muthu (Ed.). *Sustainable Textile Management and Quality Systems*. Springer.

COURSE OBJECTIVES

1. To provide fundamental knowledge of Business Analytics concepts, processes, and their role in organizational decision-making.
2. To develop skills in managing data, technology, and analytical resources for effective business analytics implementation.
3. To enable students to apply descriptive, predictive, and prescriptive analytics techniques for business problem-solving and performance improvement.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the concepts, processes, importance, and applications of Business Analytics in organizational decision-making.	Understand
CO 2	Illustrate the management of analytical resources including personnel, data, technology, and information policies.	Understand
CO 3	Apply descriptive analytics techniques, statistical methods, and data visualization tools to analyze business data.	Apply
CO 4	Analyze business problems using predictive analytics models and data mining techniques.	Analyse
CO 5	Develop prescriptive analytics models and optimization approaches to improve business performance and decision-making.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	S	M	-	-	-
2	S	M	-	M	-
3	M	S	M	S	M
4	M	S	S	M	-
5	M	S	S	S	M

UNIT I Introduction To Business Analytics (BA)

Business Analytics - Terminologies, Process, Importance, Relationship with Organizational Decision Making, BA for Competitive Advantage.

UNIT II Managing Resources For Business Analytics

Managing BA Personnel, Data and Technology. Organizational Structures aligning BA. Managing Information policy, data quality and change in BA.

UNIT III Descriptive Analytics

Introduction to Descriptive analytics - Visualizing and Exploring Data - Descriptive Statistics - Sampling and Estimation - Probability Distribution for Descriptive Analytics - Analysis of

Descriptive analytics

UNIT IV Predictive Analytics

Introduction to Predictive analytics - Logic and Data Driven Models - Predictive Analysis Modeling and procedure - Data Mining for Predictive analytics. Analysis of Predictive analytics

UNIT V Prescriptive Analytics

Introduction to Prescriptive analytics - Prescriptive Modeling - Non Linear Optimization - Demonstrating Business Performance Improvement.

REFERENCES:

1. Marc J. Schniederjans, Dara G. Schniederjans and Christopher M. Starkey, " Business Analytics Principles, Concepts, and Applications - What, Why, and How", Pearson Ed, 2014
2. Christian Albright S and Wayne L. Winston, "Business Analytics - Data Analysis and Decision Making", Fifth edition, Cengage Learning, 2015.
3. James R. Evans, "Business Analytics - Methods, Models and Decisions", Pearson Ed, 2012.

COURSE OBJECTIVES

1. To develop creativity and innovation skills for designing textile products based on market requirements.
2. To provide practical exposure in textile product design, prototyping, evaluation, and commercialization.
3. To enable students to develop sustainable and innovative textile products through systematic product development processes.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Identify market needs and develop design concepts for innovative textile products.	Apply
CO 2	Develop textile product prototypes using appropriate materials, structures, and design techniques.	Apply
CO 3	Analyze functional, aesthetic, and commercial aspects of textile products through testing and evaluation.	Analyse
CO 4	Evaluate product feasibility, consumer acceptance, costing, branding, and market potential.	Evaluate
CO 5	Create innovative and sustainable textile products addressing societal, environmental, and industry requirements.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	M	M	-	M	M
2	M	M	M	S	M
3	M	M	M	M	S
4	S	M	M	M	S
5	S	S	S	S	S

List of Experiments

1. Identification of market needs and product opportunities through consumer survey.
2. Development of concept boards and inspiration boards for textile product design.
3. Preparation of design briefs and product specifications.
4. Development of textile motifs and surface design concepts.
5. Design and development of woven textile products.
6. Design and development of knitted textile products.
7. Design and development of printed textile products.
8. Development of sustainable textile products using eco-friendly materials.
9. Product prototyping using textile materials and trims.
10. Functional assessment of developed textile products.
11. Cost estimation and pricing of textile products.

12. Branding, packaging, and labeling design for textile products.
13. Market evaluation and consumer feedback analysis.
14. Development of innovative technical textile or smart textile product concepts.
15. Mini Project: Design, develop, assess, and present an innovative textile product.

TEXT BOOKS

1. Textile Product Design Briggs-Goode, A., & Townsend, K. (2011). *Textile Design: Principles, Advances and Applications*. Woodhead Publishing.
2. Fashion from Concept to Consumer Frings, G. S. (2018). *Fashion: From Concept to Consumer*. Pearson Education.
3. Textiles and Fashion Sinclair, R. (Ed.). (2015). *Textiles and Fashion: Materials, Design and Technology*. Woodhead Publishing.

REFERENCE BOOKS

1. Textile Design Portfolio Wilson, J. (2012). *Textile Design Portfolio*. Laurence King Publishing.
2. Sustainable Fashion and Textiles Design Journeys Fletcher, K. (2014). *Sustainable Fashion and Textiles: Design Journeys*. Routledge.
3. Subramanian Senthilkannan Muthu (Ed.). *Sustainable Innovations in Textiles and Fashion*. Springer.
4. V. K. Kothari (Ed.). *Progress in Textiles: Science and Technology*. IAFL Publications.
5. Roshan Paul (Ed.). *Textile Design and Product Development*. Woodhead Publishing.
6. G. Thilagavathi. *Textiles and Clothing for Product Development Applications*.

ELECTIVE COURSES

26BSTX34A

HOME TEXTILES

L T P C
3 0 0 3

COURSE OBJECTIVES

1. To provide knowledge of home textiles, furnishing materials, floor coverings, curtains, draperies, and bed linen products.
2. To develop an understanding of the selection, design, construction, and functional requirements of home furnishing products.
3. To familiarize students with recent developments, trends, and applications of textiles in interior and home furnishing environments.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the types, characteristics, and applications of furnishing materials, floor coverings, curtains, draperies, and bed linens.	Understand
CO 2	Analyze factors influencing the selection of home furnishing materials based on aesthetics, functionality, durability, and end-use requirements.	Analyse
CO 3	Evaluate recent developments and innovations in floor coverings, draperies, upholstery, and home furnishing products.	Evaluate
CO 4	Apply principles of colour, texture, design, and furnishing styles in the selection and coordination of home textile products.	Apply
CO 5	Develop suitable home furnishing solutions considering consumer needs, comfort, aesthetics, and sustainability aspects.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	-	-	-	-	M
2	M	M	-	M	M
3	M	S	M	M	M
4	M	M	-	M	S
5	S	S	M	M	S

UNIT I

FURNISHINGS: Developments in Textile Furnishing; Type of Furnishings Materials – Woven and non-woven; Factors affecting selection of Home Furnishings.

UNIT II

FLOOR COVERINGS: Recent Developments in manufacturing of floor coverings -Hard Floor Coverings, Resilient Floor Coverings, Soft Floor Coverings, Rugs, Cushion and Pads; Care of floor coverings.

UNIT III

CURTAINS AND DRAPERIES: Advances in Home decoration - Draperies – Choice of Fabrics, Curtains – Types of Developments in Finishing of Draperies; Developments in tucks and Pleats; uses of Drapery Rods, Hooks, Tape Rings and Pins.

UNIT IV

HOME FURNISHING: Advances in period style in, Different styles, and use of Colours, design & texture in home furnishing. Developments in living room furnishing including upholstery, Wall Hangings, Cushion, Cushion Covers, Bolster and Bolster Cover.

UNIT V

BED LINENS: Advances in the production of - Different Types of Bed Linen, Sheets, Blankets, Blanket Covers, Comforts, Comfort Covers, Bed Spreads, Mattress and Mattress Covers, Pads, Pillows.

TEXT BOOKS:

1. Alexander.N.G., “Designing Interior Environment”, Mas Court Brace Covanorich, Newyork, 1972
2. Donserkery.K.G., “Interior Decoration in India”, D. B. Taraporeval Sons and Co. Pvt. Ltd., 1973

REFERENCES:

1. Wingate I.B. & Mohler J.F., “Textile Farbics & Their Selection”, Prentice Hall Inc., New York, 1984.
2. Irsak.C, " Nonwoven Textiles" Textile Institute", Manchester, 1999
3. Krcma.R., Manual of Non-wovens, Textile Trade Press, Manchester 1993.

COURSE OBJECTIVES

1. To provide knowledge of technical textiles, their classifications, materials, manufacturing methods, and applications.
2. To develop an understanding of specialized textile sectors such as medical, industrial, geotechnical, agro, protective, mobile, and sports textiles.
3. To familiarize students with emerging developments in smart and intelligent textiles and their role in modern technological applications.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the concepts, classifications, materials, structures, and market potential of technical textiles.	Understand
CO 2	Analyze the materials, properties, and applications of medical, industrial, geo, agro, and build textiles.	Analyse
CO 3	Evaluate the performance requirements and applications of mobile, protective, and sports textiles for specific end uses.	Evaluate
CO 4	Assess the suitability of fibres, yarns, fabric structures, coatings, and laminations used in technical textile products.	Evaluate
CO 5	Develop solutions using smart and intelligent textile technologies for industrial, healthcare, sports, and protective applications.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	M	M	-	-	M
2	M	S	-	M	M
3	S	S	M	M	M
4	S	M	M	M	M
5	S	S	M	S	S

UNIT I

Technical Textiles: Definition – Classification – Market growth and potential - Future of Technical Textiles industry in India. Fibres used - Technical yarns: staple yarns, monofilament, multifilament yarns - Technical fabrics: woven, nonwoven, knitted and braided structures.

UNIT II

Medical Textiles: Non-implantable materials, extra-corporeal devices, implantable materials, healthcare and hygiene products. Fibres used in medical textiles.

Industrial Textile: Fibres used - functions and properties - introduction to coated fabrics - Coating methods: Direct and indirect - Lamination methods: Flame bonding and adhesive lamination - Applications of coating and laminated textiles.

UNIT III

Geo-Textiles: Materials used – properties – testing methods and application. **Agro Textiles:** Materials used – properties – classification and applications. **Build Textiles:** Materials used – classification - properties and applications.

UNIT IV

Mobile Tech Textiles: Raw material selection – properties – classification and applications. **Protective Textiles:** Materials used – properties - applications: Fire Protective clothing, Heat resistant garments, Water proof materials, Ballistic resistant Vests, Biological and chemical Protective clothing.

UNIT V

Sports Textiles: Raw materials used – classification - properties and applications.

Smart and Intelligent Textiles: Active, passive and very smart textiles - Phase change materials- shape memory polymers - chromic and conductive Materials - applications in various fields.

TEXT BOOKS:

1. Adanur, Sabit (2017). Wellington Sears Handbook of Industrial Textiles. Rouledge.
2. Horrocks, A. R. & Anand, S. C. (2000). Handbook of Technical Textiles. Cambridge, England: Woodhead Publishing and The Textile Institute.
3. Hearle, J.W.S. (2001), High Performance Fibers, Cambridge, England: WoodHead Publishing limited.

REFERENCES:

1. Kumar, Senthil. R. (2013). Textiles for Industrial Applications. 1st Edition. CRC Press.
2. V.K.Kothari Recent advances in technical textiles-Indian journal of fiber and textile research
3. Johnson, J. S. and Mansdorf, S. Z. (1996). Performance of Protective clothing. 5th Volume. USA: ASTM Publication.

COURSE OBJECTIVES

1. To provide knowledge of production planning, scheduling, and control systems used in apparel and textile manufacturing industries.
2. To develop skills in capacity planning, line balancing, production analysis, and resource utilization for efficient production management.
3. To familiarize students with modern production control techniques, inventory management systems, and manufacturing optimization tools.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the concepts, objectives, and functions of production planning and control systems in apparel manufacturing.	Understand
CO 2	Analyze production systems, workflow layouts, cut order planning, marker utilization, and production performance parameters.	Analyse
CO 3	Apply capacity planning, labour and machinery requirement calculations, and line balancing techniques for efficient production management.	Apply
CO 4	Evaluate production scheduling and control techniques using Gantt charts, CPM, PERT, and machine loading methods.	Evaluate
CO 5	Assess inventory management and production optimization systems such as MRP, JIT, EOQ, and OPT for improved manufacturing efficiency.	Evaluate

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	-	-	-	M	M
2	M	M	-	M	M
3	M	M	-	S	M
4	M	M	M	S	S
5	S	S	M	M	S

UNIT I

Production Planning: Objectives - production control system: functional areas - elements - types – strategy production - pre-planning - pre-production functions - product acceptance -product development.

UNIT II

Production Systems: Whole garment production system - progressive bundle system – unit production system - multiple flow system - modular system - evaluating production system - principles for choosing a production system.

Flow Process grid and charts: Flow process grid construction - flow process grids for production control - Producing multiple styles.

UNIT III

Production Analysis: Qualitative and quantitative specifications - cut order planning - marker utilization - economic cut quantities.

Plant Loading and Capacity Planning: Determination of machinery requirements for a new factory - calculation of labour requirements - application of line balancing techniques - balance control.

UNIT IV

Production Scheduling: Principles - scheduling charts: GANTT chart and backlog graph - scheduling control techniques - network representations: CPM and PERT.

Machine Loading: Determination of machine allocations for balanced production in existing plant.

UNIT V

Production Control Forms: Form Distribution Chart -Types of Control forms – Materials Management - Manufacturing Resources Planning (MRP) and its types - just in time production system (JIT) - Inventory modeling: Economics order quantity (EOQ) - Optimized production technology (OPT).

TEXTBOOKS:

1. Solinger, Jacob. (2000). Apparel Manufacturing Analysis. Columbia Boblin Media.
2. Bheda, Rajesh. (2002). Managing Productivity of Apparel industry. New Delhi, India: CBI Publishers and Distributors.

REFERENCES:

1. Glock, R. E. and Kunz, G. I. (2005). Apparel Manufacturing: Sewn Product Analysis. 4th Edition. New Jersey, USA: Pearson/ Prentice Hall Publishing Company.
2. Brown, P. K., Brown, P. and Rice, Janett. (2014). Ready To Wear Apparel Analysis. 4th Edition. New Jersey, USA: Pearson/ Prentice Hall Publishing Company.
3. Tyler, D. J. (1991). Materials Management in Clothing Production. New Jersey, USA: Pearson/ Prentice Hall Publishing Company.
4. Karthik, T., Ganesan, P. and Gopalakrishnan, D. (2016). Apparel Manufacturing Technology. India: CRC Press.
5. Colovic, Gordana. (2011). Management of Technology Systems in Garment Industry. India: Woodhead Publishing, CRC Press.
6. Chapman. (2008). Fundamentals of Production Planning and Control. India: Pearson Education India.
7. Nayak, Rajkishore and Padhye, Rajiv. (2015). Garment Manufacturing Technology. Elsevier.

COURSE OBJECTIVES

1. To provide knowledge of quality assurance principles, systems, and standards used in fabric and apparel production.
2. To develop skills in quality evaluation, process control, defect analysis, and inspection techniques throughout the textile and apparel manufacturing chain.
3. To enable students to implement quality assurance practices for achieving customer satisfaction, regulatory compliance, and continuous improvement.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain quality assurance principles, standards, and systems used in textile and apparel industries.	Understand
CO 2	Analyze quality requirements and process control measures in fabric manufacturing and wet processing operations.	Analyse
CO 3	Apply inspection techniques, testing procedures, and quality control methods to evaluate textile and apparel products.	Apply
CO 4	Evaluate fabric and garment defects, quality performance, and compliance requirements using industry standards.	Evaluate
CO 5	Develop quality improvement strategies to enhance product quality, customer satisfaction, and operational efficiency.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	M	-	S	M	M
2	M	M	M	M	M
3	M	M	M	S	M
4	S	M	M	M	S
5	S	S	S	S	S

UNIT I – Fundamentals of Quality Assurance

Concept of quality – Quality Control (QC), Quality Assurance (QA), and Total Quality Management (TQM) – Quality dimensions in textiles and apparel – Cost of quality – Quality planning and quality systems – Customer requirements and specifications – Quality standards and certifications – Role of quality assurance in textile and apparel industries.

UNIT II – Quality Assurance in Fabric Production

Quality assurance in spinning, weaving, and knitting – Raw material inspection and control – Yarn quality parameters and testing – Process control in weaving and knitting – Fabric defects and classification – Grey fabric inspection systems – 4-point and 10-point fabric inspection systems – Statistical process control in fabric manufacturing.

UNIT III – Quality Assurance in Wet Processing

Quality assurance in pretreatment, dyeing, printing, and finishing – Process control parameters – Colour measurement and shade matching – Colour fastness testing – Dimensional stability – Fabric appearance and performance evaluation – Eco-compliance requirements – Quality standards for processed fabrics.

UNIT IV – Quality Assurance in Apparel Production

Quality requirements in apparel manufacturing – Quality assurance in spreading, marker planning, cutting, sewing, pressing, finishing, and packing – In-line, end-line, and final inspections – Garment measurement specifications and tolerances – Garment defects and root cause analysis – AQL (Acceptable Quality Level) – Buyer quality requirements and compliance audits.

UNIT V – Continuous Improvement and Quality Management Systems

ISO 9001 Quality Management System – Lean quality concepts – Six Sigma fundamentals – Kaizen and quality circles – Vendor quality assurance – Corrective and preventive actions (CAPA) – Customer complaint handling – Quality documentation and reporting – Sustainability and digital quality management in textile and apparel industries.

TEXT BOOKS

1. Physical Testing of Textiles Saville, B. P. (2019). *Physical Testing of Textiles* (5th ed.). Woodhead Publishing.
2. Textile Testing Fibre Yarn and Fabric Kothari, V. K. (Ed.). (2020). *Textile Testing: Fibre, Yarn and Fabric*. IAFL Publications.
3. The Technology of Clothing Manufacture Carr, H., & Latham, B. (2008). *The Technology of Clothing Manufacture* (4th ed.). Wiley-Blackwell.

REFERENCE BOOKS

1. Managing Quality Integrating the Supply Chain Foster, S. T. (2021). *Managing Quality: Integrating the Supply Chain*. Pearson.
2. Total Quality Management Besterfield, D. H. et al. (2018). *Total Quality Management*. Pearson Education.
3. Quality Management in the Textile Industry Mehta, P. V. *Quality Management in the Textile Industry*.
4. V. K. Kothari (Ed.). *Progress in Textiles: Science and Technology*. IAFL Publications.
5. A. K. Sarkar. *Textile Science and Technology*. CBS Publishers & Distributors.
6. Subramanian Senthilkannan Muthu (Ed.). *Sustainable Textile Manufacturing and Quality Management*. Springer.

Course Objective

- To provide students with a fundamental understanding of the relationship between fabric properties and fabric fitness for purpose.
- To teach students how to select the appropriate fabric for specific applications, considering factors such as performance requirements, aesthetics, and cost.
- To help students develop their skills in fabric evaluation and quality control.
- To prepare students for careers in the textile, apparel, and home furnishings industries.

Course Outcomes

On the successful completion of the program, the student will be able to:

	Course Outcome	Level
CO 1	Provide an overview of sizing system	Understand
CO 2	Understand the complex issue of sizing	Understand
CO 3	Gain knowledge on textile entrepreneurship.	Apply
CO 4	Develop an overall perspective on garment appearance	Skill
CO 5	Perform fit analysis	Skill

Mapping of Program Outcomes with Course Outcomes

	MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)				
	PO				
CO	1	2	3	4	5
1	M	S			
2			S		M
3	S			M	
4		M		S	
5			M		S

UNIT I ANTHROPOMETRY AND BODY MEASUREMENTS

Anthropometry – Definition, scope, and importance in apparel design. Study of body measurements – infants, children, women, and men. Perception of body appearance; figure analysis; body ideals; height and weight distributions; body proportions. Landmark identification and measurement techniques. Cross-cultural variations in body dimensions.

UNIT II SIZING SYSTEMS AND STANDARDIZATION

History of the sizing system: creating the sizing system. Sizing standardization – numbered sizing, lettered sizing for Men's, Women's, and Children's. Methods of sizing for mass production of clothing for men, women, and children. Mass customization – sizing technologies and applications. International sizing standards: ISO, ASTM, and Indian Standard IS 1080. Size charts and ease allowances.

UNIT III FIT ANALYSIS AND PATTERN ALTERATION

Fit – Definition and importance. Elements of fit – line, grain, set, balance and ease. Human performance in clothing system – mobility, comfort, and aesthetics. Objective and subjective evaluation of fit. Analyzing poor fit – identification and diagnosis of common fit problems. Pattern alteration for fit – pivoting and slash methods. Virtual garmenting – 3D simulation software and applications in fit evaluation.

UNIT IV FABRIC PROPERTIES AND GARMENT APPEARANCE

Fabric properties influencing clothing appearance and fit – extensibility, elasticity, stiffness, and surface characteristics. Fabric drape – concept, measurement methods (Cusick drapemeter). Seamed fabric drape and dynamic fabric drape. Bending rigidity and its influence on silhouette. Objective evaluation of overall garment appearance – wrinkle resistance, pilling, dimensional stability, and colour fastness in relation to fit and appearance.

UNIT V SUSTAINABLE SIZING, INCLUSIVE FIT, AND EMERGING TECHNOLOGIES

Need for inclusive sizing and apparel. Sizing considerations for plus-size, petite, tall, maternity, and elderly consumers. Body shape classification and design implications. Introduction to 3D body scanning technology. Size recommendation systems in e-commerce. Virtual try-on and digital fit technologies. Future trends in apparel sizing and fit.

TEXT BOOKS:

1. Fan J, Yu W and Hunter L, "Clothing Appearance and Fit", The Textile Institute, Wood head Publishing Limited, England, 2004.
2. Ashdown S P, "Sizing in clothing", The Textile Institute, Woodhead Publishing Limited, England, 2007.
3. Sandra Betzina, "Fast Fit-Easy pattern alterations for every figure", The Taunton Press, Inc., Singapore, 2003.
4. Aldrich W., "Metric Pattern Cutting for Women's Wear", 6th Edition, Wiley-Blackwell, Oxford, 2015.
5. Chun-Yoon J. and Jasper C.R., "Consumer Preferences for Apparel Attributes", Journal of Consumer Studies and Home Economics, 2017.

REFERENCES:

1. Patty Brown and Janett Rice, "Ready-To-Wear Apparel Analysis", Prentice Hall, 2001.
2. Editors of Creative publishing, "The Perfect Fit- classic guide to alter patterns", Creative publishing international, USA, 2005.
3. Lynn Macintyre and Mary Tilton, "Easy Guide to sewing", Taunton press, USA, 2009

4. Istook C.L. and Hwang S.J., 3D Body Scanning Systems with Application to the Apparel Industry”, Journal of Fashion Marketing and Management, 2001.
5. Gupta D. and Zakaria N. (Eds.), & “Anthropometry, Apparel Sizing and Design”, Woodhead Publishing, 2014.
6. Bye E., LaBat K.L. and DeLong M.R., Analysis of Body Measurement Systems for Apparel & Clothing and Textiles Research Journal, 2006.
7. Rahman O. and Gong Y., “Wearable Technology in Fashion: Consumer Perspectives”, Journal of Fashion Technology and Textile Engineering, 2016.
8. Cichocka A. and Efrat S., “Vanity Sizing in Clothing: The Impact on Consumer Behaviour & International Journal of Consumer Studies, 2018.
9. BIS (Bureau of Indian Standards) IS 1080 – Size Designation of Clothes – Dress Sizes for Women (Latest Edition).
10. ASTM International Standards D5585, D6240 – Standard Tables of Body Measurements for Men’s and Women’s Apparel.

COURSE OBJECTIVES

1. To provide fundamental knowledge of photography principles, camera operations, lighting techniques, and image capture methods.
2. To develop practical skills in fashion, studio, outdoor, and digital photography for professional applications.
3. To familiarize students with photographic processing, printing techniques, videography, and computer-based image editing and presentation.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the principles of photography, camera systems, lenses, lighting methods, and image capture techniques.	Understand
CO 2	Apply appropriate camera settings, lighting arrangements, and photographic techniques for indoor and outdoor photography.	Apply
CO 3	Analyze photographic requirements and select suitable equipment and techniques for fashion, portrait, studio, and photojournalistic photography.	Analyse
CO 4	Evaluate image quality through exposure control, film processing, printing, and digital imaging techniques.	Evaluate
CO 5	Create professional photographic and videographic presentations using digital cameras, image editing tools, and computer applications.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	-	-	-	-	M
2	M	-	-	M	S
3	M	M	-	M	S
4	M	M	M	M	S
5	S	M	M	M	S

UNIT I

General principle – Photography - camera, lens. How to use your camera – Needs and methods lighting techniques for indoor / outdoor photography – methods and equipment's – advantage and disadvantages.

UNIT II

Image capture – parts of camera- classification and types of camera – Applications Disadvantages. Light – Natural, artificial, flash and strobe.

UNIT III

Photography techniques and equipment for different fields. Basic, studio, location

portraiture, Photojournalism, Fashion Photography, Fashion shows.

UNIT IV

Exposure and processing of colour and black and white films. Different techniques in developing. Printing – definitions – Methods of printing for black & white colour.

UNIT V

Photography using digital cameras – Video photography – image mixing – advertising and still life - application of computers in photography.

TEXT BOOKS:

1. W.R. Miller, “Basic Industrial Arts, Plastics, Graphics Arts, Power Mechanics, Photography”, McKnight Publishing Company, Illinois, 1978.
2. Nirmal Pasricha, "A Professional's Basic Photography", Black Rose Publications, Delhi, 2002.
3. Daniel Lezano, "The Photography Bible", A David and Charles Book., United Kingdom, 2004.

REFERENCES:

1. John Hedge, “Photography Course”, John Hedge Co, 1992
2. Simon Joinson, "Get the most from your Digital Camera", A David and Charles Book., United Kingdom, 2004.
3. Steve Bavister, "35 mm Photography -The Complete Guide", A David and Charles Book., United Kingdom, 2004.
4. Peter Cattrell, "Photography", Octopus Publishing Group Ltd, London 2005.
5. Sue Hillyard, "The Photography Handbook - A Step by Step Guide", New Holland Publishers, London, 2003

COURSE OBJECTIVES

1. To provide fundamental knowledge of photography principles, camera operations, lighting techniques, and image capture methods.
2. To develop practical skills in fashion, studio, outdoor, and digital photography for professional applications.
3. To familiarize students with photographic processing, printing techniques, videography, and computer-based image editing and presentation.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the importance of clothing care, care labeling systems, textile fibres, and fabric care requirements.	Understand
CO 2	Apply appropriate washing, stain removal, ironing, pressing, and finishing techniques for different garments.	Apply
CO 3	Analyze fabric care behavior and select suitable maintenance practices based on fibre properties and fabric characteristics.	Analyse
CO 4	Demonstrate effective storage and wardrobe management techniques for preserving garment quality and longevity.	Evaluate
CO 5	Evaluate garment care methods and recommend suitable maintenance procedures for different apparel products.	Evaluate

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	S	M	-	-	-
2	S	M	M	-	M
3	M	S	M	M	-
4	M	-	-	-	S
5	M	S	-	M	M

UNIT I

Introduction to Clothing Care: Importance of clothing care and maintenance. Objectives of garment care. Factors affecting garment life. Overview of textile fibres and their care requirements. Care Labels: Types, Label instructions and care symbols (care labeling system).

UNIT II

Fabric Properties and Care Behaviour: Classification of fibres: natural, regenerated, synthetic. Effect of fibre structure on washing and maintenance. Fabric finishes and their impact on care. Colour fastness and shrinkage behavior. Special care fabrics: silk, wool, chiffon, lace, denim, knitwear.

UNIT III

Laundry and Washing Techniques: Principles of washing and cleaning. Types of washing: hand wash, machine wash, dry cleaning. Detergents, soaps, and stain removers. Water temperature and its effect on fabrics. Sorting of clothes before washing. Stain removal techniques (tea, oil, ink, blood).

UNIT IV

Ironing, Pressing and Finishing: Difference between ironing, pressing, and steaming. Temperature settings for different fabrics. Use of steam irons and pressing equipment. Finishing techniques for garments. Wrinkle removal methods and care during pressing.

UNIT V

Storage and Wardrobe Management: Proper storage techniques for different garments. Seasonal clothing storage methods. Use of moth repellents and protective covers. Folding vs hanging methods. Wardrobe organization and maintenance*.

REFERENCES

1. Nayak, R., & Ratnapandian, S. (2018). Care and Maintenance of Textile Products Including Apparel and Protective Clothing. CRC Press.
2. D'Souza, N. (2001). Fabric Care. New Age International Publishers.
3. Elsasser, V. H. (1979). Textiles: Concepts and Principles. Fairchild Publications.
4. Joseph, M. (1986). Introductory Textile Science. Cengage Learning.
5. Kadolph, S. J. (2010). Textiles. Pearson Education.

COURSE OBJECTIVES

1. To provide knowledge on the fundamentals, principles, and significance of visual merchandising in retail environments.
2. To develop understanding of visual presentation elements, store fixtures, display techniques, and merchandising tools used in apparel retailing.
3. To enable students to plan, design, and execute effective visual merchandising strategies for enhancing customer experience and retail sales.

COURSE OUTCOMES (CO)

On the successful completion of the course, the student will be able to:

Course Outcome		Level
CO 1	Explain the concepts, objectives, scope, and approaches of visual merchandising in different retail formats.	Understand
CO 2	Apply the principles of color, lighting, graphics, signage, and sensory elements in visual presentation and garment display.	Apply
CO 3	Analyze the selection and use of mannequins, fixtures, store exteriors, and storefront design elements.	Analyse
CO 4	Examine various store interior displays, focal points, point-of-purchase displays, and display techniques used in retail merchandising.	Analyse
CO 5	Develop store layouts, planograms, assortment plans, and display schedules for effective visual merchandising execution.	Create

MAPPING OF COURSE OUTCOMES AND PROGRAMME OUTCOMES (S – Strong, M-Medium)					
CO	PO				
	1	2	3	4	5
1	S	M	-	-	-
2	S	M	M	-	-
3	M	S	M	-	-
4	M	S	M	M	-
5	M	M	S	S	M

UNIT I FUNDAMENTALS OF VISUAL MERCHANDISING

Visual Merchandising-definition, objectives and scope. Types of display and display settings. Retail stores and approaches of visual merchandising -Types of retail stores, store atmospherics, Approaches in Visual Merchandising in various stores-In house staffing, Department Store Approach, Small Store Approach. Role of Visual Merchandising in changing face of retailing.

UNIT II ELEMENTS OF VISUAL PRESENTATION

Overview of the various elements – Color, lighting, line and composition, graphics and signage, store exteriors and interiors, sensory stimulants like scent, sound etc.

Application of color schemes and color psychology to create mood in garment display

UNIT III MANNEQUINS AND FIXTURES

Mannequins and other human forms, alternatives to mannequins. Criteria for selection of fixtures, dressing fixtures, modular fixtures. Store exterior – Signs, Marquees, Outdoor Lighting, Banners, Planters, Awnings, Windows in Storefront Design, store fronts.

UNIT IV STORE INTERIORS AND POINTS OF DISPLAY

Focal points, island displays, risers and platforms, the runway the catwalk, counters and display cases, museum cases, demonstration cubes, ledges, shadow boxes, enclosed displays, fascia, walls. Point of purchase display, industrial display, fashion shows, trade organizations and sources. Display techniques

UNIT V STORE PLANNING AND EXECUTION OF A VISUAL PRESENTATION

Store layout planning-grid, racetrack, free form and their direction of flow. Floor plans and reading of floor plans – Plan-o-gram- definition, purpose and planning -theme, ensemble, racks, shelves, bins etc. Assortment planning- Assortment planning, optimize apparel assortments Display calendar and planning a display, scheduling the promotion, budgeting and safety factors in visual merchandising.

TEXT BOOKS:

1. Pegler M.M., “Visual Merchandising and Display”, IV Edition, Fair child Publications, NewYork,2001.
2. Diamond.J,Diamond,E.,“Contemporary Visual Merchandising”, Prentice HallInc. New Jersey2003.
3. Diamond.E, Fashion Retailing–A Multichannel Approach,IIEdition, Prentice HallInc. NewJ ersey2006.

REFERENCES:

1. RathP.M.,PetersonJ., Greensley.P, Gill.P, Introduction to Fashion Merchandising, Delmar PublishersInc., NewYork1994.
2. PhillipsP.M. Fashion Sales Promotion, IIEdition, Prentice HallInc, NewJersey,1996.
3. CurtisE, Fashion Retail, John Wiley and SonsLtd, England,2004.

