

**GOVERNMENT OF ASSAM
STATE COUNCIL FOR TECHNICAL EDUCATION
DIRECTORATE OF TECHNICAL EDUCATION, ASSAM**



**FINAL SYLLABUS OF DIPLOMA IN
FASHION/GARMENT TECHNOLOGY (2nd SEMESTER)**

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Inclusion of National Education Policy, 2020:

As envisioned in the NEP 2020 the State Council for Technical Education, Assam will be responsible for mentoring its affiliated Polytechnics so that they develop capabilities and achieve minimum benchmarks in academic and curricular matters, teaching and assessment.

State Council for Technical Education (SCTE), Assam will notify the pool of MOOCs courses duly approved by its statutory bodies and map them in Academic Bank of Credits (ABC). Affiliated Polytechnics may opt for any of these courses as required. State Council for Technical Education (SCTE) will take suitable action for preparation of syllabus for these courses including learning objective and learning outcome.

The State Council for Technical Education (SCTE) may fix the minimum number of credits to be earned by the students from a parent institution.

All the affiliating institutions will complete Academic Bank of Credits registration through SCTE. Institute will monitor the opening of ABC account by all the students.

Salient features

Salient features that are to be considered for developing the curriculum aligned to NEP 2020 are as follows:

- Reduced number of credits.
- Introduction of Student Induction Program.
- Well defined learning objectives & outcomes for each course.
- Inclusion of courses on socially relevant topics.
- Built-in flexibility to the students in terms of professional elective and open Elective courses.
- Mandatory internship to equip the students with practical knowledge and provide them exposure to real time industrial environments.
- Virtual Labs.
- Mapping of Courses to its equivalent NPTEL/SWAYAM Course.
- Course on 'Entrepreneurship and Startups' to encourage entrepreneurial mindset.
- Introduction of Design Thinking and Universal Human Value course.

Basic Guidelines:

The existing Credit System is revised as Choice Based Credit System (CBCS) in line with NEP guidelines, to infuse innovation and flexibility. No hard separation between streams, between curricular and extra-curricular, between Vocational and Academic, Multidisciplinary and holistic education across the disciplines, Ethics and Human & Constitutional values, Life skills, use of technology as part of all curriculum.

- An academic year is divided into two semesters as per AICTE guidelines.
- A semester consists of approximately 90 working days. One working week will have approximately 40 hours of instructional time.
- There shall also be a Winter Internship Program for duration of 4 weeks/one month from 1st January to -31st January.
- Summer term courses may be offered on a fast-track mode to enable students to complete arrears/special courses.

- Teachers may avail semester end vacations after the end of each semester. Subject to completion all kinds of examination related work.
- The Polytechnics under the Directorate of Technical Education can decide on the kind of courses to be offered in the summer term, based on the requirements and also based on the availability of teaching faculty.
- Internship/apprenticeship can be carried out during the winter term, mandatorily for regular student.
- Students who wish to exit after 1st year or 2nd year of study, have to undergo mandatory bridge courses as defined in the course structure.

Induction Program:

The Essence and Details of Induction program can be find from the ‘Detailed Guide on Student Induction program’, as available on AICTE Portal,

(Link: <https://www.aicteindia.org/sites/default/files/Detailed%20Guide%20on%20Student%20Induction%20program.pdf>),

The Induction program for students to be offered right at the start of the first year for three-week duration.

- Physical activity
- Creative Arts
- Universal Human Values
- Literary
- Proficiency Modules
- Lectures by Eminent People
- Visits to local Areas

Mandatory Visits/ Workshop/Expert Lectures:

- a) It is mandatory to arrange one industrial visit every semester for the students of each branch.
- b) It is mandatory to conduct a One-week workshop during the winter break after fifth semester on professional/ industry/ entrepreneurial orientation.
- c) It is mandatory to organize at least one expert lecture per semester for each branch by inviting resource persons from domain specific industry

GENERAL COURSE STRUCTURE & CREDIT DISTRIBUTION

A. Definition of Credit:

1 Hr. Lecture (L) per week	1 credit
1 Hr. Tutorial (T) per week	1 credit
1 Hr. Practical (P) per week	0.5 credit
2 Hours Practical (P) per week	1 credit

B. Range of Credits:

In the light of the fact that a typical Model Four-year Under Graduate degree program in Engineering has about 160 credits, the total number of credits proposed for the three-year Diploma program in Engineering & Technology is 120.

C. Structure of Diploma Engineering program:

The structure of Diploma Engineering program shall have essentially the following categories of courses with the breakup of credits as given:

Sr. No.	Category	Suggested Breakup of Credits
1.	Humanities & Social Sciences courses	8*
2.	Basic Science courses	19*
3.	Engineering Science courses	15*
4.	Program Core courses (Branch specific)	45*
5.	Program Elective courses (Branch specific)	12*
6.	Open Elective courses (from other technical and /or emerging subjects)	9*
7.	Project work, seminar and internship in industry or elsewhere	12*
8.	Audit Courses [Environmental Sciences, Induction training, Indian Constitution, Essence of Indian Traditional Knowledge etc.]	(non-credit)
	Total	120*

*Minor variation is allowed as per need of the respective disciplines.

D. Course code and definition:

Course code	Definitions
L	Lecture
T	Tutorial
P	Practical
HS	Humanities & Social Sciences Courses
BS	Basic Science Courses
ES	Engineering Science Courses
PC	Program Core Courses
PE	Program Elective Courses
OE	Open Elective Courses
AU	Audit Courses
SI	Summer Internship
PR	Project
SE	Seminar

E. Course level coding scheme:

Three-digit number (odd numbers are for the odd semester courses and even numbers are for even semester courses) used as suffix with the Course Code for identifying the level of the course e.g.

101, 102 ... etc. for first year

201, 202 Etc. for second year

301, 302 ... for third year

F. Evaluation Scheme for 2nd Semester of Diploma in Fashion/Garment Technology under State Council for Technical Education (SCTE), Assam

For Theory Courses:

(The weightage of Internal assessment is 40% and for End Semester Exam is 60%) The student has to obtain at least 40% marks individually both in internal assessment and end semester exams to pass.

For Practical Courses:

(The weightage of Internal assessment is 60% and for End Semester Exam is 40%) The student has to obtain at least 40% marks individually both in internal assessment and end semester exams to pass.

For Summer Internship / Projects / Seminar etc.

Evaluation is based on work done, quality of report, performance in viva-voce, presentation etc.

Note: The internal assessment is based on the student's performance in mid semester tests (two best out of three), quizzes, assignments, class performance, attendance, viva-voce in practical, lab record etc.

G. Mapping of Marks to Grades

Each course (Theory/Practical) is to be assigned 100 marks, irrespective of the number of credits, and the mapping of marks to grades may be done as per the following table:

Range of Marks	Assigned Grade	Grade Point	Remarks
91-100	A ⁺	10	Outstanding
81-90	A	9	Excellent
71-80	B ⁺	8	Very Good
61-70	B	7	Good
51-60	C ⁺	6	Average
46-50	C	5	Below Average
40-45	D	4	Pass
< 40	F (Fail due to less marks)	-	Fail
-	F ^R (Fail due to shortage of attendance and therefore, to repeat the course)	-	-

H.Credit Distribution, Mark Distribution and Break up of Internal Assessment Marks as per following table:

a) Credit Distribution:

SECOND SEMESTER (FT/GT)

SN	Category of Course	CODE NO	COURSE TITLE	HRS PER WEEK			CREDITS
				L	T	P	
1	Engg Science	ES-202	Introduction to IT System	2	0	0	2
2	Basic Science	BS-203	Applied Chemistry-II	2	0	0	2
3	Programme Core	PC-201	Textile Fibre	2	0	0	2
4	Programme Core	PC-202	Sketching & Model Drawing	0	0	6	3
5	Programme Core	PC-203	Elements of Design	2	1	0	3
6	Programme Core	PC-204	Fabric Studies	2	0	0	2
7	Programme Core	PC-205	Fabric Manufacturing Process	2	0	0	2
8	Programme Core	PC-206	Fabric Manufacturing Process Lab	0	0	4	2
9	Engg Science	ES-208	Introduction to IT System Lab	0	0	4	2
10	Audit	AU-201	Environmental Science	2	0	0	0
Total =				14	1	14	20
Total Hours Per Week = 29 [L=14; T=1; P=14]							

***Note: Mandatory Skill course (4 Credits) if any student wants to exit after completion of first Year (Second Semester) courses:**

S. N	Category of Course	Code No.	Course Title	Hours per week			Credits
				L	T	P	
1.	Skill course	SC101	Cutting & Dress Making	1	0	6	4
2.	Skill course	SC102	Sewing tools & sewing machine Operator	1	0	6	4
3.	Skill course	SC103	Care & maintenance of Sewing Machine	1	0	6	4
				Total			4

I. *Note: Mandatory Internship (4 weeks) after Second semester. Credits will be added in Third semester.

a) Marks Distribution

Semester – II

S. No.	Course Code	Course Title	Internal Assessment (Theory)		ESE		Internal Assessment (Practical)		Practical Test		Total Marks (Course)	Pass Marks (Course)
			Total Marks	Pass Marks	Total Marks	Pass Marks	Total Marks	Pass Marks	Total Marks	Pass Marks		
1	ES-202	Introduction to IT System	40	16	60	24	-	-	-	-	100	40
2	BS-203	Applied Chemistry-II	40	16	60	24	-	-	-	-	100	40
3	PC-201	Textile Fibre	40	16	60	24	-	-	-	-	100	40
4	PC-202	Sketching & Model Drawing	40	16	60	24	-	-	-	-	100	40
5	PC-203	Elements of Design	40	16	60	24	-	-	-	-	100	40
6	PC-204	Fabric Studies	40	16	60	24	-	-	-	-	100	40
7	PC-205	Fabric Manufacturing Process	40	16	60	24	-	-	-	-	100	40
8	PC-206	Fabric Manufacturing Process Lab	-	-	-	-	90	36	60	24	150	60
9	ES-208	Introduction to IT System Lab	-	-	-	-	90	36	60	24	150	60
10	AU-201	Environmental Science	-	-	-	-	60	24	40	16	100	40
Total											1000	

N.B: The marks of Audit Course is not included in total marks.

b) Break Up of Internal Assessment Marks

Internal Assessment for Theory (TA+HA&CT)

Component	Teacher's Assessment (TA)			Home Assignment & Class Test (HA&CT)				Total
	Attendance	Discipline	Class Participation	Home Assignment	Presentation / Seminar	Quiz	Class Test	
Maximum Marks	5	1	2	4	6	2	20	40

Note: Three (3) class tests must be conducted for each course. For calculation of Internal Assessment, best two (2) class tests out of the three (3) conducted is to be considered.

Internal Assessment for Practical (PA)

(i). For 60 marks

Component	Maximum Marks
Teacher's Assessment (TA)	
Attendance	10
Discipline	2
Practical Assignment	
Practical Work and/or Laboratory Report	30
Presentation	10
Viva	8
Total	60

(ii). For 90 marks(IT System Lab)

Component	Maximum Marks
Teacher's Assessment (TA)	
Attendance	10
Discipline	5
Practical Assignment	
Practical Work and/or Laboratory Report	45
Presentation	15
Viva	15
Total	90

Note: Student must pass in Internal Assessment (Theory & Practical). If a student fails in Internal Assessment, he/she will not be allowed to appear in the End Semester Examination.

- c) Grading System proposed is Absolute Grading System.
- d) Conversion factor from Cumulative Grade Point Average (CGPA) to Percentage (%) is 10.

Range of Attendance with Marks (for Theory):

Sl No.	Range of Attendance	Marks
1	96% and above	5 Mark
2	91% to 95%	4 Mark
3	86% to 90%	3 Mark
4	81% to 85%	2 Mark
5	76% to 80%	1 Mark
6	75%	Only permitted to appear in the exam
7	Between 60% to 75%	NC: May appear in the exam if there are genuine reasons
8	Below 60%	DC: Cannot appear in the exam

Range of Attendance with Marks (for Practical):

Sl No.	Range of Attendance	Marks
1	96% and above	10 Mark
2	91% to 95%	9 Mark
3	86% to 90%	8 Mark
4	81% to 85%	7 Mark
5	76% to 80%	5 Mark
6	75%	Only permitted to appear in the exam
7	Between 60% to 75%	NC: May appear in the exam if there are genuine reasons
8	Below 60%	DC: Cannot appear in the exam

Valid Ground for Non-collegiate students:

1. Medical grounds.
2. Participation in a state/national level competition, including the journey period as approved by the Head of Institution.
3. Participation in a seminar of national/international level, workshop or conference, including the journey period as approved by the Head of Institution.
4. Participation in voluntary programmes conducted by the Institute/Directorate as per Government notification.
5. Any other grounds which the Examination Committee, in consultation with the Secretary, SCTE may approve.

Current Examination Fee structure:

- Non Collegiate Fees: Rs. 300/- (per subject)
 - Examination Fee: Rs. 500/-
 - Retest Fee: Rs. 200/- (per subject)
- N.B: The rates may be changed subject to Government order.

Conditions for Dis-Collegiate (DC) student:

- (i) Any candidate who is an internal student but has attended less than 60% of classes in any one or more subjects on theory and/ or practical shall not be eligible to appear in the respective semester examination and termed as Dis-collegiate student.
- (ii) Dis-collegiate students will have to repeat the semester by taking admission in the next session.

Note: The above guidelines may be changed/modified as per AICTE and Government of Assam notification from time to time.

Detailed Second Semester Curriculum Contents (Fashion/Garment Technology)

1.Course Title: Introduction to IT Systems

Course Code : ES – 202

Credits- 2 (L: 2, T: 0, P: 0)

Course Objectives:

- This course is intended to make new students comfortable with computing environment
- Learning basic computer skills
- Learning basic application software tools
- Understanding Computer Hard-ware and Cyber security awareness

Course outcomes (Theory):

At the end of the course student will be able to

CO 1 Explain the basic components and functions of computer hardware and software.

CO 2 Solve problems related to number systems.

CO 3 Design static web pages using HTML and CSS .

CO-4 Familiarize with Open office writer, calc and Impress.

CO-5 Explain the different threats and security measures related to protection of computer systems.

Detailed Course Content

Unit	Unit Title	Content	Hours
I	Introduction to computer systems:	<p>Definition of Computer System, Block Diagram of Computer System. Component of Computer System - Hardware and Software. Hardware components – CPU, Memory (types), Display Units (types), Key-board, Mouse, HDD, SSD and other Peripheral Devices.</p> <p>Software: Types of Software – Application Software, System Software and Utilities Software. Overview of Operating Systems - What is an OS? OS Functions, Brief history on Evolution of OS. Types of OS. OS Processing – (Batch, Multi-programming, Multitasking, Real-time, Timesharing), Operating System Structures.</p>	7
II	Basics of Number system and codes	Binary, octal, hexadecimal and decimal Number systems and their inter conversion, Different types of Codes - BCD Code, Gray Code, ASCII Code, EBCDIC Code, Unicode, ISCII.	4
III	Basic Internet skills	Understanding browser, types and efficient use of search engines, IP address, http, https, Cookies, how to delete browser data, downloads, emails and Awareness about Digital India portals (state and national portals) and college portals.	3

IV	HTML 4, CSS basics	<p>HTML – Introduction <input type="checkbox"/> HTML – Elements <input type="checkbox"/> HTML – Tags <input type="checkbox"/> HTML – Text <input type="checkbox"/> HTML – Formatting <input type="checkbox"/> HTML – Pre <input type="checkbox"/> HTML – Attributes <input type="checkbox"/> HTML – Font <input type="checkbox"/> HTML – Text Links <input type="checkbox"/> HTML – Comments <input type="checkbox"/> HTML – Lists <input type="checkbox"/> HTML – Images <input type="checkbox"/> HTML – Image Links <input type="checkbox"/> HTML – Tables <input type="checkbox"/> HTML – Bgcolor <input type="checkbox"/> HTML – Color Codes <input type="checkbox"/> HTML – Color Chart <input type="checkbox"/> HTML – Background <input type="checkbox"/> Web Forms <input type="checkbox"/> HTML – Forms <input type="checkbox"/> HTML – Input <input type="checkbox"/> HTML – Text Fields <input type="checkbox"/> Hidden Fields <input type="checkbox"/> HTML – Password <input type="checkbox"/> HTML – Reset</p> <ul style="list-style-type: none"> • HTML – Submit <input type="checkbox"/> HTML – Checkboxes <input type="checkbox"/> HTML – Radio <input type="checkbox"/> HTML – Select <input type="checkbox"/> HTML – Hidden Fields <input type="checkbox"/> HTML – Upload <input type="checkbox"/> HTML – Textarea <input type="checkbox"/> Special Tags <input type="checkbox"/> HTML – Body <input type="checkbox"/> HTML – Meta <input type="checkbox"/> HTML – Style <input type="checkbox"/> HTML – Div <input type="checkbox"/> HTML – Layouts <input type="checkbox"/> HTML – Frames <input type="checkbox"/> Formatting Tags <input type="checkbox"/> HTML – Bold <input type="checkbox"/> HTML – Paragraphs <input type="checkbox"/> HTML – Headings <input type="checkbox"/> HTML – Line Breaks <p>CSS: CSS Introduction <input type="checkbox"/> CSS Syntax <input type="checkbox"/> CSS Id & Class <input type="checkbox"/> CSS Styling <input type="checkbox"/> Styling Backgrounds <input type="checkbox"/> Styling Text <input type="checkbox"/> Styling Fonts <input type="checkbox"/> Styling Links <input type="checkbox"/> Styling Lists</p> <ul style="list-style-type: none"> • Styling Tables <input type="checkbox"/> CSS Border <input type="checkbox"/> CSS Margin <input type="checkbox"/> CSS Display <input type="checkbox"/> CSS Positioning <input type="checkbox"/> CSS Align <input type="checkbox"/> CSS Types - Inline, Internal and External. 	7
V	Office Tools	<p>OpenOffice Writer, OpenOffice Spreadsheet (Calc), OpenOffice Impress.</p> <p>Open Office Tools: Writer – Page setup, Table, Insertion of Pictures, Page Layout, Bullets, Insertion of objects and symbols, Header, Footer, Page Number, etc., Calc-format cell properties, formula, sort and filters, chart. Impress – Addition and Deletion of Slides, Design, Animation, Slide Show etc.</p>	3
VI	Information security best practices	<p>What is Information Security & Why do you need it? – Basics Principles of Confidentiality, Integrity and Availability Concepts, Policies, procedures, Guidelines, Standards Administrative Measures and Technical Measures, People, Process, Technology. Threats to Cybersecurity - Viruses, Worms, Phishing, Malware, Trojans, Spyware, Adware, Rootkits, Email hijacking.</p> <p>Methods to protect your personal computers – What is Antivirus? Types of Antivirus. Firewalls.</p>	6

Teaching Scheme

Teaching Scheme		
Lecture	Tutorial	Total
2	-	2

Total No. Of classes	30
Lecture	30
Tutorial	-

Assessment Scheme

	Internal	ESE	Total
Full Marks	40	60	100
Pass Marks	16	24	40

Distribution of marks

Unit No.	Unit Title	Type of Question			Total marks
		Objective	Short	Descriptive	
I	Introduction to computer systems	4	5	5	14
II	Basics of Number system and codes	2	2	4	08
III	Basic Internet skills	1	2	3	06
IV	HTML 4, CSS basics	4	5	5	14
V	Office Tools	1	2	3	06
VI	Information security best practices	3	4	5	12
	Total	15	20	25	60

References:

- R.S. Salaria, Computer Fundamentals, Khanna Publishing House
- Introduction to IT Systems (with Lab Manual) – By Prashant Joshi.
- Introduction to IT Systems – By P. Mondal (Bhagabati Publication)
- Web Design With HTML & CSS - by [Prem Kumar](#)
- HTML & CSS Easy learn in 7 Days Paperback – by [Albert Irudaya Raj](#)
- Mastering HTML, CSS & JavaScript Web Publishing - by [Laura Lemay](#)
- HTML and CSS: Design and Build Websites - by Jon Duckett

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2. Course Title: Applied Chemistry-II

1. **Course Title:** Applied Chemistry - II

2. **Course code:** BS-203

3. **Prerequisites:** High School Level Chemistry

4. **Rationale of the subject:**

5. **COURSE OUTCOME:** After completion of the course learners will be able to:

C.O1: Classify organic compounds, explain homologous series, functional groups, and isomerism, and apply IUPAC nomenclature to name organic compounds.

C.O2: Classify polymers and explain the process of polymerization, differentiate between thermoplastic and thermosetting plastics, and identify the monomers of commercially important plastics and fibers.

C.O3: Understand the concepts of lubricants and lubrication, classify different types of lubricants, and describe the characteristics of good lubricating oil, including viscosity, pour point, and precipitation number.

C.O4: Define and classify dyes with examples and identify the raw materials used in their manufacture.

C.O5: Understand the chemical structures of natural and synthetic fibers, analyze the properties that make fibers suitable for specific applications, and explain the molecular interactions that influence dye binding to different fibers.

6. **Teaching Scheme (in hours):**

Theory			Practical	Total
Lectures	Tutorial	Class Test	0	48
42		3		

7. **Teaching scheme (in hours)/ week**

Lectures	Tutorial	Practical	Credit point
2	0	0	2

8. **Examination Scheme:**

Theory				Total Marks
End Semester Examination		Internal Assessment		100
Full Marks	Pass Marks	Full Marks	Pass Marks	
60	24	40	16	

9. DETAILED COURSE CONTENTS:

Chapter	Title of Chapter	Topics and Sub-topics	Teaching Hours	Marks
1	Organic chemistry (Hydrocarbons)	1.1 Classification of Hydrocarbons, Homologous series, IUPAC nomenclature of hydrocarbons and compounds containing functional groups, Isomerism, aromatic hydrocarbons, structure of benzene, preparation and properties of benzene. 1.2 General methods of preparation and properties: alcohol, phenol, ether, aldehydes, ketones, carboxylic acids. 1.3 Introduction to Bio-organic chemistry: Amino Acids, Proteins, Carbohydrates.	12	17
2	Polymers and Fiber	2.1 Definition, Classification of polymers, methods of polymerization 2.2 Properties of fiber forming polymers: Polyethylene, polypropylene, polyvinyl alcohol, Nylon, terylene, acrylic fiber, polyester	12	15
3	Lubricants and Lubrication	3.1 Definition, Classification, lubrication oil, greases, solid lubricants and lubricating emulsion with their application	5	8
4	Dyes	4.1 Definitions and classification of Dyes-examples 4.2 Raw materials for manufacture of dyes, Non-textile uses of dyes	6	8
5	Fibers	4.1 Chemical structure of fibers 4.2 Natural fibers: Cotton, Jute, Mulberry silk, Muga Silk, Eri silk, Wool. 4.3 Synthetic fibers: Polyester, Nylon, Acrylic, Nylon-6, Nylon 6,6 4.4 Bond formation between dyes and fibers	10	10

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3.Course Title: Textile Fibre

COURSE CODE	PC-201				
CATEGORY	PROGRAMME CORE				
COURSE TITLE	TEXTILE FIBRE				
SCHEME AND CREDITS	L	T	P	CREDITS (C)	SEMESTER
	2	0	0	2	II
PRE-REQUISITES (IF ANY)	NA				

Rationale of the subject/ Courses:- This subject provides knowledge regarding various textile fibres, their classification, physical property and manufacturing process of Man Made fibre which is very essential for yarn spinning, weaving and processing also.

Course Outcome

After completion of the course the students will be able to-

CO-1 Classify the different textile fibres

CO-2 Enlist the physical, chemical properties and uses of different textile fibres.

CO-3 Illustrate the production methods for synthetic and regenerated fibers, such as melt spinning, wet-spinning and dry spinning.

CO-4 Explain the manufacturing process of different Man-Made fibres.

CO-5 Enlist the different stages of extraction of bast and animal fibres and grade them.

1. Teaching Scheme (in hours) :-

Lecture	Tutorial	Total
45	0	45

2. Examination Scheme :

ESE		Internal Assessment		TOTAL MARKS
Full Marks	Pass Marks	Full Marks	Pass Marks	
60	24	40	16	100

3. Detailed Course Content :

Chapt No	Chapter Title	Content	Duration (in hours)
1	Introduction to Textile Fibre	Define fibre, textile fibres, filament Classification of Textile Fibres: As per source of availability. As per chemical composition.	5

		Essential and desirable properties of textile fibres. Orientation and Crystallinity, degree of polymerization. Advantages and disadvantages of natural & manmade fibres.	
2	Growth, Harvesting, properties of vegetable and bast fibres	2.1. Vegetable fibres: → Cotton fibre - Cultivation and harvesting, Ginning process, Morphological structure → Bast fibres - Retting and extraction process of Bast fibres –Jute, Ramie and linen. 2.2 Physical, chemical properties and uses of * Cotton * Jute * Ramie. * Linen	10
3	Production and properties of animal fibres	3.1. Animal Fibres: → Silk-Types of Silk fibre, Life cycle of silk, Morphological structure, reeling and spinning of silk fibre. → Wool-Grading of wool, Extraction process, Morphological structure 3.2 Physical, chemical properties and uses of- * Wool * Silk	8
4	Manufacturing, physical and chemical properties of Regenerated fibres	4.1 Techniques for manufacturing Man-Made Fibres: i.e. melt spinning, dry spinning and wet spinning 4.2 Process of Manufacturing of Regenerated fibres: Viscose, Cuprammonium, acetate rayon etc. 4.3 Physical and chemical properties and uses of : * Viscose Rayon * Cuprammonium * Acetate Rayon	10
5	Manufacturing, physical and chemical properties of Synthetic fibres	5.1 Manufacturing process of Synthetic fibres: Polyester, Nylon, Acrylic, Polyurethane, Polypropylene fibre. 5.2 Physical and chemical properties and uses of : * Nylon * Acrylic * Polyester * Polyurethane	8
6	Introduction to new fibres.	6.1. Introduction, Physical Properties & Uses of- Kevlar, Twaron, Carbon, Spandex	4
6	Introduction to new fibres.	6.1. Introduction, Physical Properties & Uses of- Kevlar, Twaron, Carbon, Spandex	4

4. Distribution of Marks :

Chapter No	Chapter Title	Type of Question			Total Marks
		Objective Type (Compulsory)	Short Questions	Descriptive Questions	
1	Introduction to Textile Fibre (5)	2	3	4	9
2	Natural fibres (10)	3	3	7	13
3	Physical and chemical properties of textile fibres (8)	3	3	6	12
4	Physical and chemical properties of important Man-Made Fibres.(10)	3	3	7	13
5	Physical and chemical properties of important High Performance Fibre.(8)	3	2	4	9
6	Introduction to new fibres. (4)	1	3	0	4
		15	17	28	60

5. Suggested implementation Strategies :
6. Suggested learning Resource :
7. Books list:

Sl.No	Name of Book	Author
1	Textile Fibre	Moncriff
2	Textile Fibre	Mathews
3	Textile Fibre	ATA (Textile Association- India)
4	Textile Fibre, vol-1	V.A. Shenai
5	Handbook of Textile Fibre (CTRL)	Ayengar
6	Physical Properties of Textile Fibre	Gulantee
7	Introduction to Textile Fibres	H.V.Sreenivasmurthy

8. List of Journals :

- Textile Research Journal,
- Textile Trend
- Textile Asia
- Indian Textile Journal

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4. Course Title: Sketching & Model Drawing

1. **Course title** : SKETCHING AND MODEL DRAWING

2. **Course code** : PC-202

3. **Semester** : Second

4. **Rationale of the course:** A sketch is a rapidly executed freehand drawing that is not usually intended as a finished work. A sketch may serve a number of purposes. Sketches can be made in any drawing medium. A figure drawing is a drawing of the human form in of its various shapes and which will develop basic understanding and skill of the students.

5. Teaching scheme (in hours)

Lecture	Tutorial	Practical	Total
-	-	80	80

6. Teaching scheme (in hours)/ week

Lectures	Tutorial	Practical	Credit point
0	0	6	3

7. Examination Scheme

Practical					
ESE		Internal Assessment			
Total Marks	Pass Marks	Total Marks	Pass Marks	Total Marks	Pass Marks
60	24	40	16	100	40

8. Detailed Course Content:

Chapter No	Chapter Title	Content	Hours
Unit-I	Fundamentals of Sketching	<ul style="list-style-type: none"> • Importance and creative use of sketching • Use of tools to produce technical drawing • Flat drawing techniques • Transfer Flat Drawing Techniques to freehand drawings • Illustrate style information • Use different techniques to create new illustrations 	

Unit-II	Visual study & Basic media techniques	<ul style="list-style-type: none"> • Pencil Shading • Crayon rendering • Steadler rendering • Water colour rendering • Waterproof inks • Transparency sheets 	
Unit-III	Drawing Female Figures	<ul style="list-style-type: none"> • Creation an editorial style of illustration • Fashion block figure • Fashion flesh figure • Head placement of features (Eyes, nose, lips, hair etc.) • Different postures of Arms, Hands & Legs. • Balance movement • Composition of female figure----- i) Story postures ii) Matching pose and garments <ul style="list-style-type: none"> • Female different Hairstyles • Dressing of Female figure by draping different garments. <p>Use of water and Steadler colour for---</p> <ul style="list-style-type: none"> i) Western casual wear ii) Formal wear iii) Any state Traditional wear 	
Unit-IV	Drawing Male figures	<ul style="list-style-type: none"> • Creation an editorial style of illustration • Fashion block figure • Male Tilted figure • Head placement of features (Eyes, nose, lips, hair etc.) • Different postures of Arms, Hands & Legs. • Balance movement • Composition of Male figure----- i) Story postures ii) Matching pose and garments <ul style="list-style-type: none"> • Male different Hairstyles • Dressing of Male figure by draping different garments. <p>Use of water and Steadler colour for---</p> <ul style="list-style-type: none"> i) Western casual wear ii) Formal wear iii) Any state Traditional wear 	
Unit-V	Flat sketches of Basic Garments	<ul style="list-style-type: none"> • Necklines • Plackets • Cuffs • Collars • Pockets • Sleeves 	

		<ul style="list-style-type: none"> • Skirts • Tops • Dresses • Trousers 	
Unit-VI	Flat sketches of Basic Accessories	<ul style="list-style-type: none"> • Shoes • Bags • Scarves • Belts • Headgear 	

9. Suggested Implementation Strategies: The syllabus can be completed by regular classes, special classes using audio –visual aids, tutorial classes and providing writing materials. Practical classes in the laboratory helps students to understand the subject.

10. Suggested learning Resource:

- i) Advance Fashion sketch book Bina Abling
- ii) Fashion Illustration Colin Barnes / Steven Stipelman
- iii) The Fashion guide Haurent Hartung
- iv) The Snap Fashion sketch book Bill Giazzer
- v) Figures Drawing for Fashion I & II Isao Yajima
- vi) Fashion Illustration Today Nicholas Drake
- vii) Fashion Illustration Now Laird Borrelli
- viii) Fashion Art for the Fashion Industry Rita Gersten
- ix) Fashion Design in Vogue William Packer

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5. Course Title: Elements of Design

1. **Course Title** : ELEMENTS OF DESIGN

2. **Course Code** : PC 203

3. **Semester** : 2nd

4. Rationale of Subject: Now a days design is a very important part of our life. Design concept starts from the basic requirements of our life like accommodation, furniture, house hold goods etc. In our daily life garment is also share a big percentage. Design of fabric play a big role when concern aesthetic point of view. Basic concept of design like line, shape, colour concept, design etc. have been incorporated which will help student to make customised design to satisfy customers.

5. Objective: Students will able

- To analyse colour wheel and identify Primary, Secondary and Tertiary colour.
- To understand philosophy of colours.
- To understand the concept of Tints, Tones and Shade.
- To create different Shapes / forms/ Checks such as straight and diagonal.
- To identify different motifs, abstract, floral print, nursery print, geometrical design- Triangle, rectangle and squares.
- To make different colour harmonies.
- Brief idea about Polka dots, Lines their development, arrangement and composition.
- To showcase variety of textile designs for enrichment of their personality and for other variety of uses in society as per people need.

6. Teaching Scheme (in hours):

Theory			Practical	Total
Lectures	Tutorial	Class Test		50
47		3		

7. Teaching scheme (in hours)/ week

Lectures	Tutorial	Practical	Credit point
2	1	0	3

8. Examination Scheme

Theory					
ESE		Internal Assessment			
Total Marks	Pass Marks	Total Marks	Pass Marks	Total Marks	Pass Marks
60	24	40	16	100	40

9. Details course content

Chapter No.	Chapter Title	Content	Duration (In hours)
I	ELEMENTS OF DESIGN : LINE	<ul style="list-style-type: none"> • Directing • Dividing • Psychological • Effects of line • Optical Illusion 	5
II	ELEMENTS OF DESIGN : SHAPE	<ul style="list-style-type: none"> • Natural Motif and abstract motif • Non - objective • Geometrical Design- Triangle, rectangle • Silhouettes 	8
III	ELEMENTS OF DESIGN : COLOUR	<ul style="list-style-type: none"> • Colour wheel, primary, secondary and Tertiary colour, Vibgyor. • Monochromatic, Polychromatic, Complimentary, Neutral and achromatic colour scheme. • Analogous colour, Transparent and opaque • Concept of Tint, Tone and Shade. • Psychology of colour 	8
IV	ELEMENTS OF DESIGN : TEXTURE	<ul style="list-style-type: none"> • Visual • Tactile • Audible 	2
V	ELEMENTS OF DESIGN : SPACE	<ul style="list-style-type: none"> • Positive & Negative space 	2
VI	PRINCIPLES OF DESIGN	<ul style="list-style-type: none"> • Rhythm • Balance • Emphasis • Harmony • Scale • Proportion • Variety 	8
VII	DOTS, LAYOUT AND PRINTS	<ul style="list-style-type: none"> • Polka dots, floral prints, other motifs, nursery, prints- their development, arrangement and composition. • Different types of layout and texture 	8

VIII	GOLDEN RATIO	<ul style="list-style-type: none"> • What is Golden Ratio? • Golden Ratio in Nature. • Golden Ratio in design. 	6
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Learning Resources:

Sl No.	Author	Title	Publisher
1.	Sumathi G.J.	Elements of fashion and apparel Design	New Age International Publishers
2.	Puja Khurana & Monika Sethi	Introduction to Fashion Technology	FIREWALL MEDIA
3	Albert W. Porter	Elements of Design – Space & Form Elements of Design –Line	
4	Manfred Maier	Basic Principles of Design (Vol. 1-4)	
5	Sansmarg	Basic Design: The Dynamics of visual form	
6	Birren & Fabersvan	Principles of Color Birren & Fabersvan	
7	Hannelore Eberle Hermann Hermeling Marianne Horaberger Dieter Menzer Warner Ribng	Clothing Technology	

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6.Course Title: Fabric Studies

COURSE CODE	PC-204				
CATEGORY	PROGRAMME CORE				
COURSE TITLE	FABRIC STUDIES				
SCHEME AND CREDITS	L	T	P	CREDITS (C)	SEMESTER
	2	0	0	2	II
PRE-REQUISITES (IF ANY)	NA				

Rationale of the course : This part of the course explains the fundamentals of Basic weave & colours which will develop basic understanding of the students.

Course Outcome (CO):

After completion of the course student will be able to-

CO-1: Enlist different types of yarn and fabric.

CO-2: Illustrate different fabric designs along with their drafting order and lifting plan.

CO-3: Enunciate the physical properties, its method of measurement of different fabrics.

CO-4: Calculate yarn count and covert from one system to another.

CO-5: Recognize various types of fabrics, its properties and end uses.

Detailed Course Content:

Chapter no	Chapter Title	Contents	Duration (in hrs)
1	Yarns	1.1 Different types of yarn used for weaving & knitting : Spun Yarns, Filament Yarn, Textured Yarn, Stretch Yarn, Plied Yarn 1.2 Fancy yarns: Slub Yarn, Metallic Yarn, Corkscrew yarn, Chenile Yarn, Tweed Yarn etc. 1.3 Yarn count and its calculation 1.4 Conversion of yarn count from one system to other system 1.5 Fabric formation methods	8
2	Weaves	2.1 Elements of woven Design (Design, Drafting, Lifting and Peg Plan), Methods of fabric Representation. 2.2 Plain weave & its Characteristics 2.3 Derivatives of plain weave 2.4 Characteristics of Twill weave 2.5 Construction of twill weave 2.6 Diamond & diaper design 2.7 Satin / Sateen weaves 2.8 Honey comb design 2.9 Mock leno & Huckaback design 2.10 Bedford cord 2.11 Welts & Pique design 2.12 Extra warp & Extra weft figuring 2.13 Double cloth design 2.14 Colour & weave effect	20

3	Fabric properties	3.1 Drape 3.2 Stiffness, Abrasion 3.3 Fabric texture, cover factor 3.4 Fabric Handle 3.5 Fabric Thickness 3.6 Method of measurement of the above properties	8
4	Common Fabrics	4.1 Properties and uses of common fabrics: <ul style="list-style-type: none"> • Buckram Fabric • Brocade Fabric • Calico Fabric • Cambric Fabric • Canvas or Duck Fabric • Chenille Fabric • Cheese Fabric • Chiffon Fabric • Crepe Fabric • Damask Fabric • Denim Fabric • Drill Fabric • Lace Fabric • Linen Fabric • Voile Fabric 	6

Distribution of Marks

Chapter no	Chapter Title	Type of question			Total Marks
		Objective type(compulsory)	Short questions	Descriptive type	
1.	Yarn	3	4	6	13
2.	Weaves	5	6	9	20
3.	Fabric properties	3	5	5	13
4.	Common Fabrics	4	5	5	14
Total		15	20	25	60

TABLE OF SPECIFICATIONS

Sr. No	Topic (a)	Time allotted in hours (b)	Percentage Weightage (c)	K	C	A	HA
1	Yarn	8	18	5	3	8	
2	Weaves	20	52	6	4	8	
3	Fabric properties	8	18	6	4	8	
4	Common Fabrics	6	12	6	4	6	
Total		42	100	24	16	30	

K = Knowledge C = Comprehension A = Application HA = Higher Than Application

Suggested learning Resources:

Sl. No.	Title	Author
1	Watsons Textile Design & Colour	Watson
2	Principles of Fabric Structure	AM Banerjee
3	Woven Cloth Construction	Marks & Robinsons
4	Textile Testing	Angapan

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7.Course Title: Fabric Manufacturing Process

COURSE CODE	PC-205				
CATEGORY	PROGRAMME CORE				
COURSE TITLE	FABRIC MANUFACTURING PROCESS				
SCHEME AND CREDITS	L	T	P	CREDITS (C)	SEMESTER
	2	0	0	2	II
PRE-REQUISITES (IF ANY)	NA				

Rationale of the course: Fashion and Garment students should have a brief overview of the handloom weaving process so as to enable them basic knowledge of different preparatory and fabric manufacturing techniques applied in the weaving sectors.

Course Outcome (CO): At the end of the course, students should be able to:

- CO1: Illustrate the different types of Handlooms
 CO2: Describe primary, secondary, and auxiliary motions of weaving
 CO3: Illustrate different yarn package used in textile Industry.
 CO4: Describe the various Processes used for conversion of yarn into fabric.
 a) winding b) warping c) sizing d) drawing in.
 CO5: Explain different terms of knitting
 CO6: Explain different types of needle of knitting

Detailed Course Content :

Chapter No	Chapter Title	Content	Hours
Unit-I	Outline of Weaving Process	<ul style="list-style-type: none"> Definition of Weaving and common weaving terms: Warp, Weft & Pick, Ends. Primary, Secondary and auxiliary weaving motions. Functions and importance of various parts. 	6
Unit-II	Types of Looms	<ul style="list-style-type: none"> Handloom Primitive handloom, pit loom, Fly Shuttle frame Looms. Dobby Loom Draw-Boy Loom Power loom : Non Automatic 	10
Unit-III	Weaving preparatory processes	Various Yarn packages for weaving. Process for conversion of yarn into fabric. a) Winding b) warping c) sizing d) drawing in.	10
Unit-IV	Motions of Weaving	Primary Motions <ul style="list-style-type: none"> Shedding Picking Beat-up Secondary Motions: <ul style="list-style-type: none"> Take-up Motions 	11

		<ul style="list-style-type: none"> Let-off Motions Auxiliary Motions 	
Unit-V	Knitting	Review, Growth of knitting Industry, Terms & Definitions used in Knitting, types of needles Circular & Flat bed Knitting machine. Comparison between woven and Knitted fabrics. Types of Knitting: Warp and Weft Knitted fabrics Types of Knitted fabrics and their uses.	5

Distribution of Marks:

Chapter No	Chapter Title	Type of Question			Total Marks
		Objective Type	Short Questions	Descriptive Questions	
Unit I	Outline of Weaving Process	3	4	4	11
Unit II	Types of Looms	3	4	5	12
Unit III	Weaving preparatory processes	3	5	7	15
Unit IV	Motions of Weaving	3	4	5	12
Unit V	Knitting	3	3	4	10
	Total	15	20	25	60

TABLE OF SPECIFICATIONS FOR THEORY

Sr. No	Topic (a)	Time allotted in hours (b)	Percentage Weightage (c)	K	C	A	HA
1	Outline of Weaving Process	6	14	7	-	-	-
2	Types of Looms	10	24	3	3	7	-
3	Weaving preparatory processes	10	23	6	4	8	-
4	Motions of Weaving	11	25	6	4	5	
5	Knitting	6	14	3	4	-	-
Total		42	100	25	15	20	

K = Knowledge C = Comprehension A = Application HA = Higher Than Application (Analysis)

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7.Course Title: Fabric Manufacturing Process Lab

COURSE CODE	PC-206				
CATEGORY	PROGRAMME CORE				
COURSE TITLE	FABRIC MANUFACTURING PROCESS LAB				
SCHEME AND CREDITS	L	T	P	CREDITS (C)	SEMESTER
	0	0	4	2	II
PRE-REQUISITES (IF ANY)	FABRIC MANUFACTURING PROCESS THEORY				

Detailed Course Content :

Content	Hours
<ul style="list-style-type: none"> To identify the different types of Handloom To identify the different parts and accessories of Handloom and know the functions of them. To draw and illustrate the sequence of operations in weaving. To practice the warp and weft preparation for weaving. To study the Primary, Secondary and tertiary weaving motions.(handloom & Plain Powerloom) To practice of Warping, Beaming, Denting, Drafting & looming. To study the different tie-up mechanisms of handloom weaving. To practice of weaving of basic weaves in a fly shuttle frame loom. To practice the weaving of derivatives of plain, twill weaves in a fly shuttle frame loom. To practice the extra warp / extra weft figured fabric in Draw boy / Jacquard loom. To study the different parts and accessories of a circular and flat knitting machine. To study the working of a Circular Knitting machine. 	60

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8. Course Title: Introduction to IT Systems Lab

Course : Introduction to IT
Systems Lab Course
Code: ES-208
Credits -2 (L: 0, T: 0, P: 4)

Course outcomes:

At the end of the course student will be able to

- 1: Search information effectively.
- 2: Connect peripherals and install device drivers.
- 3: Create static web pages using HTML and CSS
- 4: Create documents, spreadsheets and presentations.
- 5: Implement basic security measures to protect computer system.

Course Content:

Sl. No.	Topics for Practice
1	Browser features, browsing, using various search engines, writing search queries
2	Visit various e-governance/Digital India portals, understand their features, services offered
3	Read Wikipedia pages on computer hardware components, look at those components in lab, identify them, recognize various ports/interfaces and related cables, etc.
4	Install Linux and Windows operating system on identified lab machines, explore various options.
5	Connect various peripherals (printer, scanner, etc.) to computer, explore various features of peripheral and their device driver software.
6	Practice HTML tags-(HTML, HEAD, TITLE, BODY, TABLE, UL, OL, FORM, IMG, A, FONT etc. and their attributes). CSS Syntax <input type="checkbox"/> CSS Id & Class <input type="checkbox"/> CSS Styling <input type="checkbox"/> Styling Backgrounds <input type="checkbox"/> Styling Text <input type="checkbox"/> Styling Fonts <input type="checkbox"/> Styling Links <input type="checkbox"/> Styling Lists Styling Tables <input type="checkbox"/> CSS Border <input type="checkbox"/> CSS Margin <input type="checkbox"/> CSS Display <input type="checkbox"/> CSS Positioning <input type="checkbox"/> CSS Align <input type="checkbox"/> CSS Types - Inline, Internal and External. Make your own Webpage.
7	Open Office Tools: Writer – Page setup, Table, Insertion of Pictures, Page Layout, Bullets, Insertion of objects and symbols, Header, Footer, Page Number, etc., Calc-format cell properties, formula, sort and filters, chart. Impress – Addition and Deletion of Slides, Design, Animation, Slide Show etc.
8	Explore security features of Operating Systems and Tools, try using them and see what happens. Explore the setting of Antiviruses and Firewalls.

This is a skill course. More you practice, better it will be.

References:

- R.S. Salaria, Computer Fundamentals, Khanna Publishing House
- Introduction to IT Systems (with Lab Manual) – By Prashant Joshi.
- Introduction to IT Systems – By P. Mondal (Bhagabati Publication)
- Web Design With HTML & CSS - by [Prem Kumar](#)
- HTML & CSS Easy learn in 7 Days Paperback – by [Albert Irudaya Raj](#)
- Mastering HTML, CSS & JavaScript Web Publishing - by [Laura Lemay](#)
- HTML and CSS: Design and Build Websites - by Jon Duckett

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10.Course Title: Environmental Science

Course Code	AU-201				
Course Title	Environmental Science				
Scheme and Credits	L	T	P	Credits, C	Semester- II
	2	0	0	0	
Pre-requisites	High School Chemistry/Basic science				

Learning Objectives:

LO-1	Acquire knowledge for solving various engineering problems by applying ecosystem to produce eco – friendly products.
LO-2	Gain fundamental knowledge of air, noise, radiation, water and soil pollution control methods for solving domestic and industrial problems.
LO-3	To recognize relevant energy sources required for domestic and industrial applications.
LO-4	Gain skills for solving local solid and e-waste problems.

Course Outcomes: After the completion of the course the student will be able to understand:

CO-1	The ecosystem and terminology for solving various engineering problems applying ecosystem knowledge to produce eco – friendly products.
CO-2	The air, radiation and noise pollution along with their control measures and acts for solving domestic and industrial problems.
CO-3	The water and soil pollution along with their control measures and acts for solving domestic and industrial problems.
CO-4	Different renewable energy resources and efficient process of harvesting.
CO-5	Solid Waste Management, ISO 14000 & Environmental Management.

Detailed Course Content:

Unit	Topic/Sub-Topics	Hours
	1.0. Introduction to Environmental Studies and Ecosystems 1.1. Scope and importance of Environmental Science, environmental components. 1.2. Definition, principle and scope of ecology, definition and concept of Ecosystem, Structure of ecosystem, Biotic & Abiotic components.	

UNIT-I	<p>Functions of Ecosystem: Physical (energy flow), Biological (food chains, food web, ecological succession), and Biogeochemical (nutrient cycling) processes.</p> <p>1.4. Types of Ecosystems - Freshwater ecosystem (Lentic and Lotic) and terrestrial ecosystem (Forest, Grassland, Desert and</p> <p>1.3. Mountain Ecosystem</p>	5
UNIT-II	<p>2.0. Air, Noise and Radiation Pollution</p> <p>2.1. Air Pollutions: Definition, types and sources of air pollution, air pollutant and its types, impact of air pollution on human health, environment and assets.</p> <p>2.2. Global warming and greenhouse effect, ozone layer depletion and acid rain.</p> <p>2.3. Air quality standards – NAAQS, AQI, Bharat Stage - VI Emission standards, Air pollution control measures.</p> <p>Air quality standards – NAAQS, AQI, Bharat Stage - VI Emission standards. Air pollution control measures.</p> <p>2.4. Radiation pollution: Definition and types of radiation, sources, effects and control of radiation pollution.</p> <p>2.5 Noise pollution: Definition, types, sources of pollution, measurement of pollution level, Effects of Noise pollution.</p>	6
UNIT-III	<p>3.0. Water and Soil Pollution</p> <p>3.1. Definition, properties and Sources of freshwater.</p> <p>3.2. Definition, Sources of water pollution, Types of water pollutants.</p> <p>3.3. Characteristics of water pollutants, Physical, chemical and biological parameters for assessment of water quality.</p> <p>3.4. Effect of water pollution on human health and environment.</p> <p>3.5. Control of water pollution</p> <p>3.6. Waste water treatment – Primary, secondary and tertiary methods.</p> <p>3.7. Soil pollution - Causes, Effects and Preventive measures of Soil Pollution.</p>	7
UNIT-IV	<p>4.0. Renewable sources of Energy</p> <p>4.1. Definition and type of renewable energy sources.</p> <p>4.2. Solar Energy: Basics of Solar energy. Flat plate collector (Liquid & Air). Theory of flat plate collector. Importance of coating. Advanced collector.</p> <p>4.3. Solar pond, Solar water heater, solar dryer, Solar stills.</p> <p>4.4. Biomass: Overview of biomass as energy source. Thermal characteristics of biomass as fuel, Anaerobic digestion. Biogas production mechanism. Utilization and storage of bio-gas.</p> <p>4.5. Wind energy: Current status and future prospects of wind energy. Wind energy in India. Environmental benefits and problem of wind energy.</p>	7

	<p>4.6. New Energy Sources: Need of new sources. Different types new energy sources.</p> <p>4.7. Applications of (Hydrogen energy, Ocean energy resources, Tidal energy conversion.)</p> <p>4.8. Concept, origin and power plants of geothermal energy.</p>	
UNIT-V	<p>5.0. Solid Waste Management, ISO 14000 & Environmental Management</p> <p>5.1. Definition and type of waste.</p> <p>5.2. Solid waste generation- Sources and characteristics of: Municipal and domestic solid waste, electronic waste (E-waste): Sources and types, constituents of e-wastes, recycling of e-waste and its environmental consequences, biomedical waste. Metallic wastes and Non-Metallic wastes (lubricants, plastics, rubber) from industries.</p> <p>5.3. Collection and disposal of different types of solid wastes.</p> <p>5.4. Waste Air quality act 2004, air pollution control act 1981, water pollution and control act 1996. Noise pollution (Regulation and Control) Rules, 2000.</p> <p>5.5. Environmental management in fabrication industry. ISO14000: Implementation in industries, Benefits.</p>	5
	Total contact Hours	30

Table of Specification for Environmental science (Theory)																
Sl No	Contact Hours	Units	Objective			Short Answer Type				Long Answers Type						Total Marks
			R	U	A P	R	U	A P	A N	R	U	A P	A N	E	C	
1	5	Unit I	1	1	1	2	1	0	0	0	2	2	0	0	0	10
2	6	Unit II	1	1	1	2	1	0	0	0	2	2	0	0	0	10
3	7	Unit III	1	1	0	0	3	2	1	0	3	3	0	0	0	14
4	7	Unit IV	1	1	0	0	0	2	1	3	3	3	0	0	0	14
5	5	Unit V	1	1	1	0	2	0	1	0	3	3	0	0	0	12

	30	Total marks	5	5	3	4	7	4	3	3	13	13	0	0	0	60
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NB: R: Remember, **U:** Understand, **AP:** Apply, **AN:** Analyze, **E:** Evaluate, **C:** Create

Annexure-I: Environmental science (Theory)										
Sl No.	Units	Time Allotted (Hrs)	Percentage Weightage	R	U	AP	AN	E	C	Total Marks
1	I	5	16.67	3	4	3	0	0	0	10
2	II	6	20.00	3	4	3	0	0	0	10
3	III	7	23.33	1	7	5	1	0	0	14
4	IV	7	23.33	4	4	5	1	0	0	14
5	V	5	16.67	1	6	4	1	0	0	12
Total		30	100.00	12	25	20	03	00	00	60

Reference Book List:

Sl No	Book Name	Author Name	Publisher
1	Environmental Studies	S.C. Sharma & M.P. Poonia	Khanna Publishing House, New Delhi
2	Understanding Chemistry	C.N. R. Rao	Universities Press (India) Pvt. Ltd., 2011
3	Elements of Environmental Pollution Control	O.P. Gupta,	Khanna Publishing House, New Delhi
4	Air Pollution & Control	Keshav Kant	Khanna Publishing House, New Delhi (Edition 2018)
5	Waste Water Treatment for Pollution Control and Re-use	Arceivala, Soli Asolekar, Shyam	Mc-Graw Hill Education India Pvt. Ltd., New York, 2007, ISBN:978-07-062099
6	Environmental Engineering Science	Nazaroff, William, Cohen, Lisa	Willy, New York, 2000, ISBN 10: 0471144940.
7	Environmental Pollution Control and Engineering	Rao, C. S.,	New Age International Publication, 2007, ISBN: 81-224-1835-X.
8	Air Pollution	Rao, M. N. Rao	Tata Mc-Graw Hill Publication, New delhi, 1988, ISBN: 0-07-451871-8.
9	Principles of Solar Engineering	Frank Kreith, Jan F Kreider	McGraw-Hill, New York ; 1978, ISBN: 9780070354760.
10	Fundamentals of renewable energy	Aldo Vieira, Da Rosa	Academic Press Oxford, UK; 2013. ISBN: 9780123978257.

	processes		
11	Industrial Solid Waste	Patvardhan, A. D	Teri Press, New Delhi, 2013, ISBN:978-81-7993-502-6
12	Waste Water Engineering	Metcalf & Eddy	Mc-Graw Hill, New York, 2013, ISBN: 077441206
13	Perspective in Environmental Studies	Anubha Kaushik and C P Kaushik	New Age International Publisher, New Delhi ISBN: 978-93-86418-63-0
14	National Environmental Policy 2006	Govt. of India, Ministry of Environment and Forest.	Approved by the Union Cabinet on 18 May, 2006
15	National Green Tribunal Act, 2010	Ministry of Law and Justice (Legislative Dept.),	The Gazette of India New Delhi, Wednesday, June 2, 2010.

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Curriculum Development cell, State Council for Technical Education,
Directorate of Technical Education, Assam

Sl. No.	Name	Designation
1	Shri Dhruvajyoti Borah, ACS	Director of Technical Education, Assam
2	Dr. Indrani Gogoi	Joint Director, DTE, Assam
3	Dr. Mrinalini Das	Controller of Examinations, State Council for Technical Education, DTE, Assam
4	Shri Ankush Borgohain	Training cum Placement Officer, DTE, Assam
5	Shri Ashok Das	Principal, Assam Textile Institute
6	Dr. Utpal Baruah	Principal, Kamrup Polytechnic
7	Shri Boobool Sarma	Assistant Controller of Examinations, SCTE, DTE, Assam

Subject-wise Committees for Curriculum of Diploma in Textile Technology (2nd Semester)

Fashion/Garment/Textile Technology:

SI No.	Name	Institute	Designation
1	Mr. Tanmai Das, HoD	Assam Textile Institute, Guwahati	Member Secretary
2	Mr. Ashok Das, Principal (i/c)	Assam Textile Institute, Guwahati	Member
3	Mrs. Tanushree Das, Lecturer	Residential Girls' Polytechnic, Golaghat	Member
4	Ms Anusmita Buragohain, Lecturer	Assam Textile Institute, Guwahati	Member

Textile Technology:

SI No.	Name	Institute	Designation
1	Mr. Nila Kr Singha, Lecturer (SG)	Assam Textile Institute, Guwahati	Member Secretary
2	Mrs. Moni Chetia, Principal (i/c)	Residential Girls' Polytechnic, Golaghat	Member
3	Mrs. Tanushree Das, Lecturer	Residential Girls' Polytechnic, Golaghat	Member

Textile Design:

SI No.	Name	Institute	Designation
1	Mrs. Tanushree Das, Lecturer	Residential Girls' Polytechnic, Golaghat	Member Secretary
2	Smt. Anu Devi, Lecturer	Assam Textile Institute, Guwahati	Member
3	Mrs. Moni Chetia, Principal (i/c)	Residential Girls' Polytechnic, Golaghat	Member

Introduction to IT Systems:

SI No.	Name	Institute	Designation
1	Smt. Plabita Borbora, HoD, Computer Engineering	Assam Engineering Institute	Member Secretary
2	Maushumi Lahon, Lecturer (SG)	Assam Engineering Institute	Member
3	Sankha Pani Bharali, Lecturer (SG)	PCPS Girls Polytechnic	Member

Environmental Science:

Sl No.	Name	Institute	Designation
1	Smt. Anita Saikia, Lecturer (SG)	Assam Engineering Institute	Member Secretary
2	Shri Ramen Bharali, Lecturer (SG)	Nowgong Polytechnic	Member
3	Shri Bedanta Barhoi, Lecturer (PT)	Lakhimpur Polytechnic	Member
4	Shri Pankaj Goswami, Lecturer (SG)	Silchar Polytechnic	Member
5	Mr. Tayab Ali, Lecturer (SS)	POWIET, Jorhat	Member
6	Shri Debabrata Talukdar, Lecturer (SG)	Silchar Polytechnic	Member

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