MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION, MUMBAI

TEACHING AND EXAMINATION SCHEME

COURSE NAME : DIP IN TEXTILE MANUFACTURE

COURSE CODE : TX

DURATION OF COURSE : 6 SEMESTERS **WITH EFFECT FROM**

SEMESTER : SECOND **DURATION : 16 WEEKS**

PATTERN : FULL TIME - SEMESTER **SCHEME : G**

SR. NO.	SUBJECT TITLE	Abbreviation	SUB CODE	TEACHING SCHEME			EXAMINATION SCHEME								SW (17200)
							PAPER HRS.	TH (1)		PR (4)		OR (8)		TW (9)		
				TH	TU	PR		Max	Min	Max	Min	Max	Min	Max	Min	
1	Communication Skills $	CMS	17201	2	--	2	3	100	40	--	--	25#	10	25@	10	
2	Mathematics and Statistics Ø	MAS	17217	4	1	--	3	100	40	--	--	--	--	--	--	
3	Yarn Manufacturing - I	YMA	17224	3	--	2	3	100	40	50@	20	--	--	--	--	
4	Fabric Manufacturing - I	FMA	17225	4	--	2	3	100	40	50@	20	--	--	--	--	**50**
5	Textile Testing - I	TTE	17226	3	--	2	3	100	40	--	--	--	--	50@	20	
6	Computer Fundamentals $	CMF	17002	1	--	4	--	--	--	50*#	20	--	--	25@	10	
7	Development of Life Skill $	DLS	17010	1	--	2	--	--	--	--	--	25@	10	--	--	
			TOTAL	**18**	**01**	**14**	**--**	**500**	**--**	**150**	**--**	**50**	**--**	**100**	**--**	**50**

Student Contact Hours Per Week: **33 Hrs.**

THEORY AND PRACTICAL PERIODS OF 60 MINUTES EACH.

Total Marks **: 850**

@ - Internal Assessment, # - External Assessment, $ - Common to All Conventional Diploma, #* - Online Examination, [ ] No Theory Examination, Ø - Common for TX, TC, DC

Abbreviations: TH-Theory, TU- Tutorial, PR-Practical, OR-Oral, TW- Termwork, SW- Sessional Work.

- Conduct two class tests each of 25 marks for each theory subject. Sum of the total test marks of all subject are to be converted out of 100 marks as sessional work. (SW)
- Progressive evaluation is to be done by subject teacher as per the prevailing curriculum implementation and assessment norms.
- Code number for TH, PR, OR and TW are to be given as suffix 1, 4, 8, 9 respectively to the subject code.

Course Name : All Branches of Diploma in Engineering & Technology

Course Code : AE/CE/CH/CM/CO/CR/CS/CW/DE/EE/EP/IF/EJ/EN/ET/EV/X/IC/IE/IS/ ME/MU/PG/PT/PS/CD/CV/ED/EI/FE/IU/MH/MI/DC/TC/TX/AU

Semester : Second

Subject Title : Communication Skills

Subject Code : 17201

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
02	--	02	03	100	--	25#	25@	150

NOTE:

- **Two tests each of 25 marks to be conducted as per the schedule given by MSBTE.**
- **Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work. (SW)**

Rationale:

In this age of globalization, competition is tough. Hence effective communication skills are important. Communication skills play a vital and decisive role in career development. The subject of Communication Skills introduces basic concepts of communication. It also describes the verbal, non-verbal modes and techniques of oral & written communication.

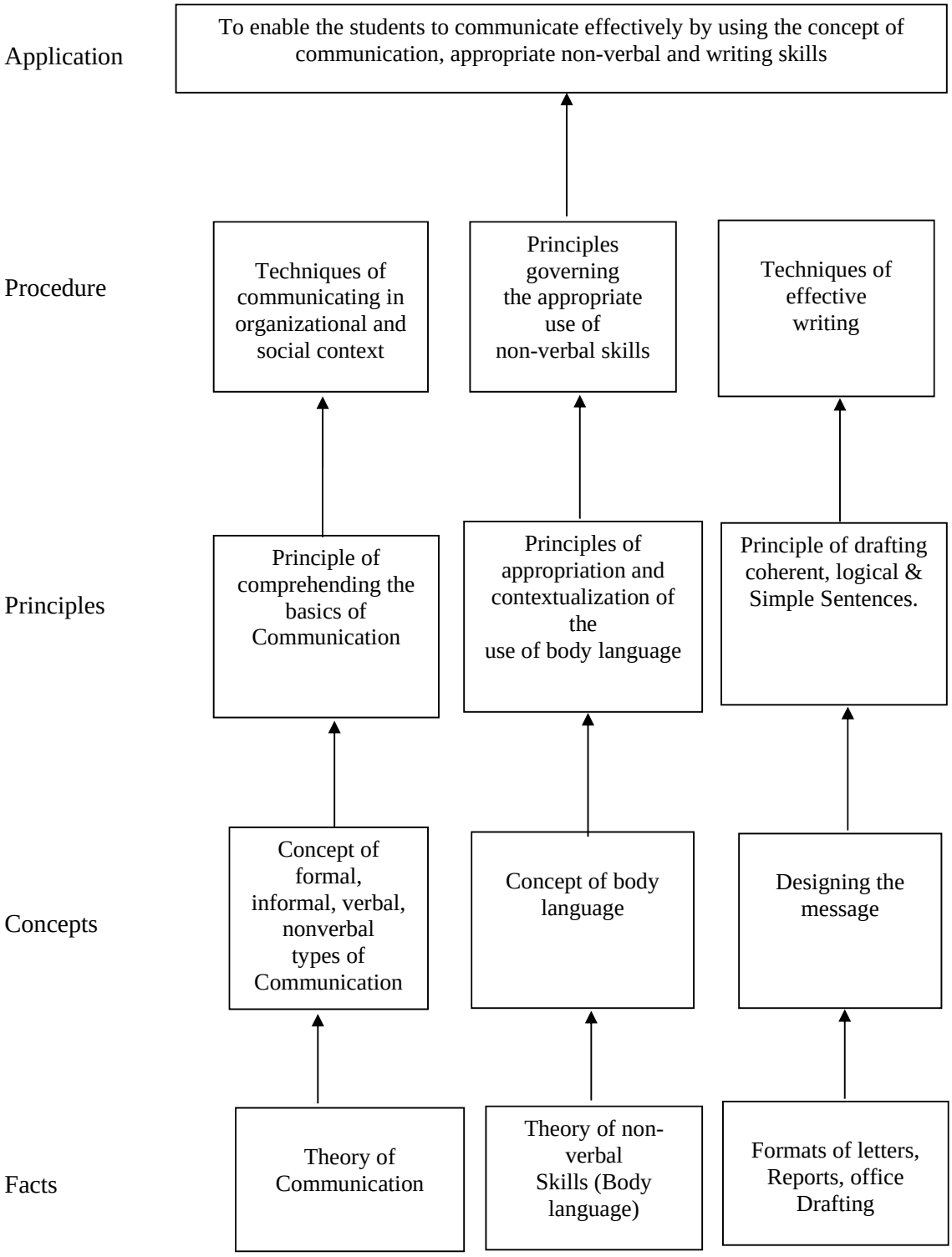
It will guide and direct to develop a good personality and improve communication skills.

General Objectives:

Students will be able to:

1. Utilize the skills necessary to be a competent communicator.
2. Select and apply the appropriate methods of communication in various situations.

Learning Structure:



Theory

Name of the Topic	Hours	Marks
Topic 01 - Introduction to Communication: **Specific Objective:** ➢ Describe the process of communication. **Contents:** • Definition of communication • Process of communication • Types of communication -- Formal, Informal, Verbal, Nonverbal, Vertical, Horizontal, Diagonal	**06**	**16**
Topic 02 - Effective communication **Specific Objective:** ➢ Identify the principles and barriers in the communication process **Contents:** ❖ Principles of communication. ❖ Barriers to communication a. **Physical Barrier**: ❖ Environmental (time, noise, distance & surroundings), ❖ Personal (deafness, stammering, ill-health, spastic, bad handwriting) b. **Mechanical** : Machine oriented c. **Psychological:** Day dreaming, prejudice, emotions, blocked mind, generation gap, phobia, status inattentiveness, perception. d. **Language** : Difference in language, technical jargons, pronunciation & allusions.	**08**	**20**
Topic 03 - Non verbal & Graphical communication: **Specific Objectives:** ➢ Effective use of body language & nonverbal codes ➢ View and interpret graphical information precisely. **Contents:** 3.1 Non- verbal codes: [08 Marks] • Proxemics, • Chronemics • Artefacts 3.2 Aspects of body language (Kinesics) [10 Marks] • Facial expression • Eye contact • Vocalics, paralanguage • Gesture • Posture • Dress & appearance • Haptics	**08**	**28**

3.3 Graphical communication [10 Marks] • Advantages & disadvantages of graphical communication • Tabulation of data & its depiction in the form of bar graphs & pie charts.		
Topic 04 - Listening **Specific Objective:** ➢ Effective use of listening **Contents:** • Introduction to listening • Listening versus hearing • Merits of good listening • Types of listening. • Techniques of effective listening.	**02**	**08**
Topic 05 - Formal Written Communication **Specific Objectives:** ➢ Use different formats of formal written skills. **Contents:** • Office Drafting: Notice , memo & e-mail • Job application with resume. • Business correspondence: Enquiry letter, order letter ,complaint letter, adjustment letter. • Report writing: Accident report, fall in production, investigation report. • Describing objects & giving instructions	**08**	**28**
	32	**100**

Skills to be developed in practical:

Intellectual Skills:

1. Analyzing given situation.
2. Expressing thoughts in proper language.

Motor Skills:

1. Presentation Skills focusing on body language.
2. Interpersonal skills of communication

Journal will consist of following assignments:

01: Draw the diagram of communication cycle for given situation.

State the type and elements of communication involved in it.

02: Graphics:- a) Draw suitable bar-graph using the given data.
b) Draw suitable pie-chart using the given data.

03: Role play: Teacher should form the group of students based on no. of characters in the situation. Students should develop the conversation and act out their roles.

04: Collect five pictures depicting aspects of body language from different sources such as magazines, newspapers, internet etc. State the type and meaning of the pictures.

NOTE: The following assignments should be performed by using Software provided by MSBTE

05: Practice conversations with the help of software.

06: Describe people/personalities with the help of software and present in front of your batch for three minutes.

07: Prepare and present elocution (three minutes) on any one topic with the help of software.

08: Describe any two objects with the help of software.

Learning Resources:

Sr. No.	Author	Title	Publisher
01	MSBTE, Mumbai.	Text book of Communication Skills.	MSBTE, Mumbai.
02	MSBTE, Mumbai.	CD On Communication Skills	MSBTE
03	Joyeeta Bhattacharya	Communication Skills	Reliable Series
04	Communication Skills	Sanjay Kumar, Pushpa Lata	Oxford University Press

Web Sites for Reference:

Sr. No	Website Address
01	Website: www.mindtools.com/page8.html-99k
02	Website: www.khake.com/page66htm/-72k
03	Website: www.BM Consultant India.Com
04	Website: www.letstak.co.in
05	Website: www.inc.com/guides/growth/23032.html-45k

Course Name : Diploma in Textile Manufactures / Diploma in Textile Technology / Diploma in Fashion & Clothing Technology

Course Code : TX/TC/DC

Semester : Second

Subject Title : Mathematics and Statistics

Subject Code : 17217

Teaching and Examination Scheme:

Teaching scheme			Examination scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
04	01	--	03	100	--	--	--	100

Note:

- **Two tests each of 25 marks to be conducted as per the schedule given by the MSBTE.**
- **Total of test marks for all the theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work (SW).**

Rationale:

Mathematics is the foundation of science and technology. The study of **Applied Mathematics** is helpful to understand concepts of Engineering. This subject enhances logical thinking capability and also improves the systematic approach in solving engineering problem.

Derivative is helpful for finding slope, tangent line, and normal line of the curve.

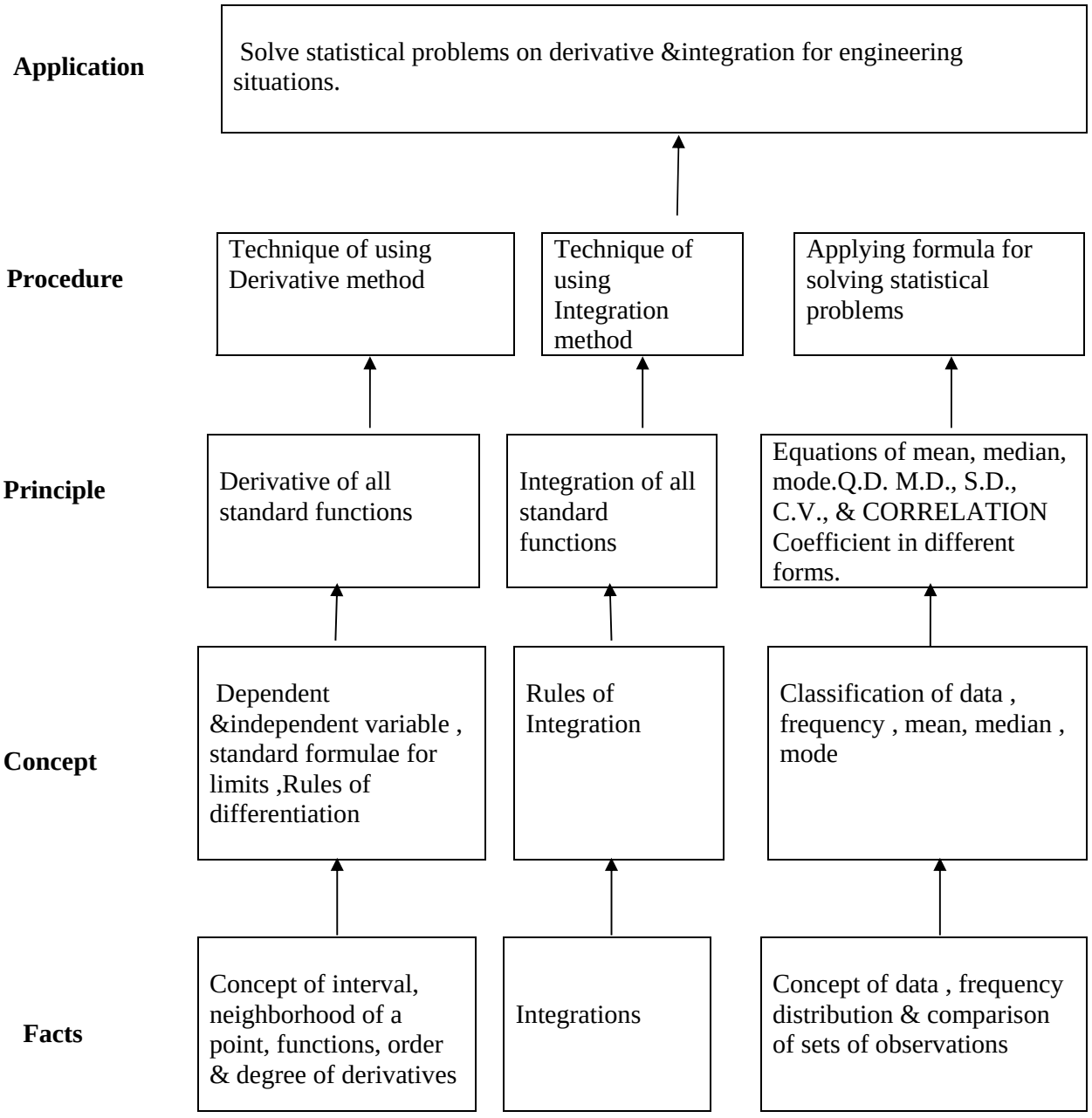
Integration provides area & volume of the curve.

Measures of central tendency, Measures of dispersion, Correlation & Lines of Regression plays an important role in Textile subjects. Contents of this subject will form foundation for further study in mathematics.

General Objectives: **Student will be able to**

1. Acquire knowledge of mathematical terms, concepts, principles & different methods for studying engineering & technological problems.
2. Understand the relationship between two variables.
3. Apply derivative & integration to solve engineering & technological problems
4. Locate the exceptional & critical points in an engineering system & come to a valid conclusion.

Learning Structure:



Theory

Topic and Contents	Hours	Marks
Topic 1: Function and Limit **Specific objectives:** **1.1 Function** **Specific objectives:** ➢ Identify types of functions. • Definitions of variable, constant, intervals such as open, closed, semi – open etc. • Definition of function, value of a function and types of functions with simple examples.	**02**	**04**
1.2 Limit **Specific objectives:** ➢ Find limits for all different functions • Definition of neighborhood, concept and definition of Limits & its standard properties. • Definition & properties of continuities only (problems not expected) • Limits of algebraic, exponential and logarithmic functions with simple examples.	**06**	**06**
Topic 2: Derivatives **Specific objectives:** ➢ Perform all algebraic operations on derivatives ➢ Find slope, tangent line, & normal line of the given curve. • Definition of derivatives & notations. • Derivatives of all standard functions. • Rules of Differentiation (without proof) such as sum, difference, scalar multiplication, product & quotient. • Derivatives of Composite Functions (chain rule) • Derivatives of Implicit functions. • Derivatives of inverse trigonometric functions. • Logarithmic differention • Derivatives of parametric functions. • Applications of derivative:- slope, tangent line, normal line, & maxima & minima of a curve	**14**	**20**
Topic 3: Integration **Specific Objectives:** ➢ Find indefinite & definite integration of different functions. • Definition of integration. • Integration of all standard functions. • Rules of Integration such as sum, difference, scalar multiplication, &product. • Methods of integration:- a) Integration by substitution b) Integration by rational functions c) Integration by partial fractions d) Integration by trigonometric transformations	**12**	**20**

e) Integration by parts rule • Definition & properties of definite integration • Simple problems on definite integration		
Topic 4: Basic concepts & Measures of Central Tendency **Specific objectives:** ➢ Prepare a frequency distribution table. ➢ Find mean, median & mode by analytical & graphical method. • Definition of class boundaries, class limits, class marks, preparation of frequency distribution table, less than cumulative frequency & greater than cumulative frequency table. • Arithmetic mean & combined mean • Median by analytical & graphical method (OGIVE method) • Mode by analytical & graphical method (Histogram method)	**10**	**16**
Topic 5: Measures of Dispersions **Specific objectives:** ➢ Find Q.D., M.D., S.D., & Coefficient of Variation. ➢ Compare variation between the two sets. • Partition values like quartiles, deciles & percentiles • Definition & types of measures of dispersions • Absolute & Relative measures of range , inter-quartile range, quartile deviation , mean deviation , standard deviation, combined standard deviation • Variance & coefficient of variation • Comparison of two sets of observations.	**10**	**18**
Topic 6 : Correlation & Lines of Regression **6.1 Correlation** **Specific objectives:** ➢ Find correlation between two variables using various methods. • Introduction and Types of correlation • Method of studying correlation a) Scatter Diagram b) Karl Pearson's co-efficient of correlation. c) Spearman's Rank correlation co-efficient. **6.2 Lines of Regression** **Specific objectives:** ➢ Find equations of lines of regression using correlation coefficient. • Introduction of linear regression • Lines of Regression a) X on Y b) Y on X • Relation between coefficient of correlation & regression coefficient.	**10**	**16**
Total	**64**	**100**

Tutorials:

Note: 1) Tutorials are to be used to get enough practice.

2) Make group of 20 students and for each group minimum 10 problems are to be given.

List of Tutorials

Sr. No.	Topic for Tutorial
1	Function and Limit
2	Derivatives
3	Derivatives
4	Integrations
5	Integrations
6	Basic concepts & Measures of central Tendency
7	Measures of Dispersions
8	Measures of Dispersions
9	Correlation
10	Lines of Regression

Learning Resources:

1) Books:

Sr. No.	Title	Authors	Publication
1	Higher engineering mathematics	B. S. Grewal	Khanna publication
2	Advanced Engg. Mathematics	H.K.Dass	S. Chand
3	Fundamentals of Statistics	S.C.Gupta	S. Chand
4	Calculus: single variable	Robert T. Smith	Tata McGraw Hill
5	Applied Mathematics	P. N. Wartikar	Pune Vidyarthi Griha Prakashan,

2) Websites :

i) www.khan Academy

ii) www.wikipedia.com

Course Name : Diploma in Textile Manufactures

Course Code : TX

Semester : Second

Subject Title : Yarn Manufacturing –I

Subject Code : 17224

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
03	--	02	03	100	50@	--	--	150

NOTE:

- **Two tests each of 25 marks to be conducted as per the schedule given by MSBTE.**
- **Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work. (SW)**

Rationale:

Introduction to textile field in convered in first semester and actual study of textile subjects i.e. spinning (YM) is introduced in the semester as **Yarn Manufacturing - I**. This includes study of characteristics of raw material, particularly cotton fibers, then cultivation of cotton crop and its harvesting and further study of processing of this material through first process in spinning i.e. blow room this will introduced the students to all spinning process in stages during higher semesters.

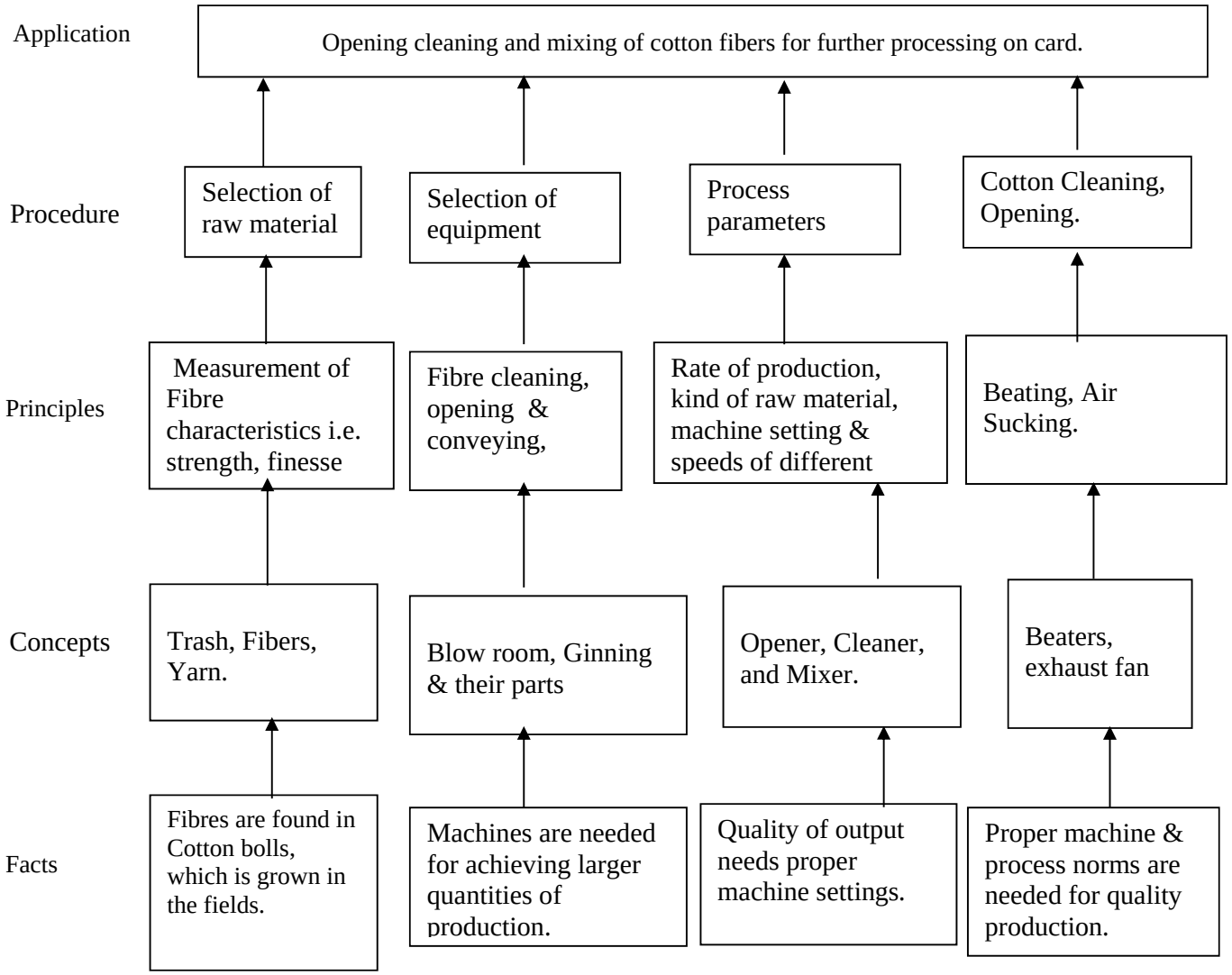
They will acquire through knowledge of machines in blow room process, process parameter etc.

Objective:

The student will able to:

1. Draw the flow chart of Spinning Process.
2. Classify different textile fibres.
3. Understand the opening, Cleaning and Blending Process.
4. Describe various machines in Blow room and their working.

Learning Structure:



Contents: Theory

Chapter	Name of the Topic	Hours	Marks
1	**Raw material as a factor influencing spinning:** Charctristics of the raw material (and their importance in spinning) - Fibre fineness, maturity, length , elongation, slenderness ratio, fibre cleanness, dust , neps.	**08**	**16**
2	**Cotton cultivation and harvesting**: 2.1 Cultivation of cotton, picking of the cotton, mechanical and hand picking and their comparison. 2.2 Pre ginning and ginning processes, construction and working of double roller gin, Effect of ginning on fibre properties. 2.3 Baling and pressing of cotton, Mixing and conditioning of cotton (stack mixing).	**10**	**20**
3	**Study of blow process:** 3.1 Introduction –performance profile of blow room. 3.2 Basic operations in blow room - opening, cleaning (cleaning degree, cleaning efficiency, fibre stressing index), dust removal, blending. 3.3 The components of blow room machines, feed apparatus, opening devices and their classification—rollers with teeth (blades) spikes, rollers with toothed discs, rollers with fine saw tooth. The grid, grid as operating device, elements of grid, grid adjustment. 3.4 General factors influencing opening and cleaning, 3.5 Machines forming an installation—5 zone machines. Brief study of machines—Bale opener, automatic bale opener- Uniflock, Blendomat, Pre cleaner—Maxiflow, Uniclean, Homogeneous mixers—Unimix, multimixer, Fine cleaners - Uniflex, cleanomat cleaner. Zone 6 machines - card feeding, the scutcher. 3.6 Dust removal, Rieter dust extractor, dustex DX of Trutzschler. 3.7 Transport of material—mechanical, pneumatic, control of material flow—Simple machine regulating devices,-- mechanical devices, optical regulating system in stop go operation. Accessories and associated equipments - metal extractos - magnatic, electronic. Fire eliminators. Disposal of dirty waste, dust and fly, recycling of raw material.	**30**	**64**
	Total	**48**	**100**

Practical:
Skills to be developed:
Intellectual Skills:

1. Calculate the speeds of various machine parts in Blow room.
2. Identify the raw materials for end uges.
3. Select settings of various machines in blow room.
4. Select various machines for particular mixing.

Motor Skill:

1. Draw gearing diagram of ginning and blow room machines.
2. Draw the sketches of Blow room Machines.
3. Measure the speeds by using tachometer.

List of Practicals:

1. Visit to a ginning factory
2. Visit to mill - General study of spinning unit and object of each process.
3. Study of construction & working of ginning machines , calculation of beater speed etc .
4. Study of construction & working of bale opener.
5. Study of gearing diagram, calculation of speeds of various parts of bale operner.
6. Study of construction & working of preopener (maxiflow) calculation of beater speed .
7. Study of construction & working of fine cleaner (CVT cleaner) calculation of beater speed, feed roller speed.
8. Study of chute feed system of any modern card.
9. Wrapping calculation of sliver

Learning Resources:
List of Books:

Sr. No.	Author	Title	Publication
1.	W. Klein	Technology of Short Staple Spinning Vol. I	The Textile Institute Manchester.
2.	W. Klein	The Practical Guide To Opening and Carding Vol. 2.	The Textile Institute Manchester.
3.	W. Klein	The Practical Guide To Combing and Drawing Vol. 3	The Textile Institute Manchester.
4.	W. S. Taggart.	Cotton Spinning Vol. I	Macmillan and Co. Ltd.
5.	T. K. Pattabhiram	Essential Element of practical Cotton Spinning.	Somaiya Publication Pvt. Ltd. Mumbai.
6.	T. K. Pattabhiram	Essential Facts in Cotton Spinning.	Somaiya Publication Pvt. Ltd. Mumbai.
7.	A. R. Garde (Editor)	Spinning Tablet Series (9 numbers)	The Textile association , India.
8.	Ed. By K. Ganesh, A. R. Garde	Cotton Spinning.	The Textile association , India.
9.	K. R. Salhotra	Spinning of manmades and Blends on Cotton System	The Textile association, India.
10.	H V S Murthy	Introduction to Textile Fibres	The Textile association, India.

Course Name : Diploma in Textile Manufactures

Course Code : TX

Semester : Second

Subject Title : Fabric Manufacturing-I

Subject Code : 17225

Teaching and Examination Scheme

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS.	TH	PR	OR	TW	TOTAL
04	--	02	03	100	50@	--	--	150

NOTE:

- **Two tests, each of 25 marks, to be conducted as per the schedule given by MSBTE.**
- **Total of test marks for all theory subjects are to be converted out of 50 and to be entered in mark-sheet under the head Sessional Work (SW).**

Rationale:

After giving brief idea about Textiles in the first semester, students are now exposed to fabric manufacturing process. Weaving is the most commonly employed method of fabric manufacturing. Basically, weaving process is divided into two parts – weaving preparatory and actual fabric production on loom. Among preparatory processes – weft (pirn) winding is included in this semester while warp preparatory processes will be dealt in further semesters.

Various types of looms like hand-looms, non-automatic looms, automatic looms and shuttleless looms are used for fabric manufacturing. Out of these, hand looms are suitable for small scale production while other types of looms are suitable for large scale production and hence are used in industry. Among these, non-automatic loom producing plain fabric, can be considered as basic loom giving knowledge about various motions and mechanisms provided on the loom. With this view, study of plain powerloom (non-automatic loom) is included in this semester while automatic looms and shuttleless looms will be dealt during higher semesters.

In this semester, student will study primary, secondary and auxiliary motions of plain power loom, accessories of loom and fabric defects. He also will be able to practice production calculations of loom. Practices will provide hands on experience on plain loom and pirn winding machine.

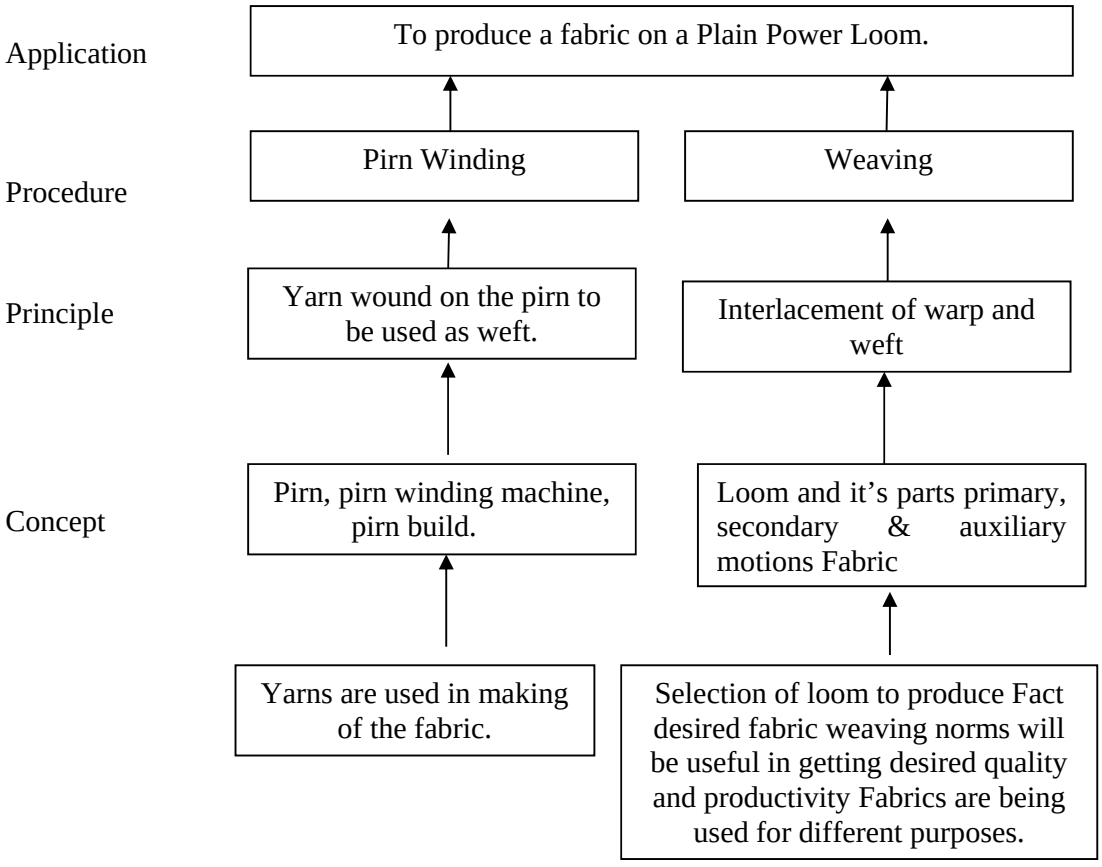
Yarn numbering system forms the basis of weaving calculations. Study of yarn numbering system will make the student familiar with commonly used count systems in the Textile Industry. By it's study, student will be able to calculate count of given yarn, find its equivalent count in another system.

Objectives – For Fabric Manufacturing – I:

The student will be able to

- Understand weft winding process
- Understand yarn numbering systems
- Describe various motions of a plain power loom
- Identify various fabric defects.
- Calculate production of a loom.

Learning Structure:



Contents – Theory

Chapter		Hours	Marks
01	**Weft Winding – Pirn Winding :-** **Specific Objectives – The Student will be able to –** • understand object of pirn winding • Understand construction and working of pirn winding M/cs. • Compare non-automatic and automatic pirn Winding M/cs. • Identify defects in wound pirn and causes and suggest remedies for it. • Estimate time required for desired production. **Content –** 1.1 Object, types of pirn winding machines – non-automatic, automatic and fully automatic. 1.2 Passage of yarn on non-automatic and automatic pirn winding, construction and working functions of various parts on non-automatic and automatic pirn winding M/cs. 1.3 Requirements for automatic looms. 1.4 Built of pirn-defects and remedies for it. 1.5 Calculation of pirn winding speed, production & efficiency.	**08**	**10**
02	**Yarn Numbering Systems –** **Specific Objectives – The Student will be able to –** • Understand various yarn numbering systems. • Calculate count, resultant count and average count, resultant count and average count of given yarn. • find equivalent count in another system. • Calculate yarn contains on a package or consignment. **Content –** 2.1 Definition of count, Indirect and direct yarn numbering systems. 2.2 Definition, formulae and calculations for – (a) English Cotton Count, (b) Metric Count, (c) Tex and (d) Denier Count. 2.3 Conversion from one system to another system by using conversion factor. 2.4 Calculations of resultant count of folded yarns and average count for English Cotton Count and Tex Count.	**08**	**12**
03	**(A) Study of Plain Power Loom –** **Specific Objectives – The Student will be able to –** • Understand construction of plain power loom • Understand passage of warp, various motions of loom, loom timings indication. **Content –** 3.1 Loom framings, main parts of loom and their functions, passage of warp on plain power loom, objects of primary, secondary and auxiliary motions in brief, Drive to loom, Loom timing indication, hand of loom.	**20**	**24**

	B) Detailed study of Primary Motions - **Specific Objectives – The Student will be able to –** • Understand object of primary motions. • Understand construction and working of primary motions. • Set and time the primary motions. • Identify causes of defective working. • **Content –** 3.2 Shedding Motions- object, types of shedding, mechanisms – tappet, dobby and jacquard shedding, positive and negative shedding. 3.3 Tappet Shedding – study of construction and working of plain tappet shedding mechanism. functions of all parts, timing and setting. 3.4 Characteristics of good shed, effect of bad shedding, early and late shedding on loom working and fabric quality. 3.5 Construction of shedding tappet for plain weave (only) with shed geometry. Shapes of shedding tappets for 2, 2, 4 twill, 5 and 8-end satins. 1 2 4 3.6 Picking Motions :- Object, types of picking mechanisms – over-pick and under-pick mechanisms. 3.7 Over Picking Mechanism – Construction and working of cone over picking mechanism, function of all parts, timing and settings, construction of picking tappet, Adjusting picking force, early and late picking. 3.8 Under Picking Mechanism – Construction and working of both side lever and cone under picking mechanism, functions of all parts, timing and settings, comparison between various picking mechanisms. 3.9 Beat-up motions – object study of construction and working of beat-up mechanism – sley, crank and crank arm assembly. Sley eccentricity, importance and calculations.		
04	**Secondary Motions -** **Specific Objectives – The Student will be able to –** • Understand object, construction and working of secondary motions. • set and time secondary motions. • Identify causes for defective working. • Calculate dividend of 7 wheel take-up motion. • Identify pick wheel for required no. of picks per inch in the fabric. • **Content –** 4.1 Take-Up Motion (Cloth control) – object, types, study of construction and working of seven wheel take-up motion, settings and timings of the mechanism, calculation of dividend of seven wheel take-up mechanism, change of standard wheel, cloth wind-up device. 4.2 Let-off Motion – Objects, types – positive, semi-positive and negative, study of construction and working of negative let-off motions, Advantages and disadvantages.	**04**	**10**

05	**Auxiliary Motions –** **Specific Objectives – The Student will be able to –** • understand object, construction and working of auxiliary motions. • Set and time auxiliary motions. • Identify causes of defective working. Content – Object, types, study of construction and working, details of parts and its functions, settings and timings of the following. 5.1 Shuttle box – Construction of shuttle box, functions of all parts, their settings and it's effect on loom working (Box plates – front, back, bottom and end plate), box swell, box flap, check strap, shuttle guard buffer, picker, picking band etc.) 5.2 Weft Stop Motion – Types, side weft fork motion, side weft fork problems, limitations. 5.3 Warp Protector motion – Loose reed and fast reed motion and comparison between them. 5.4 Temple Motion – Two roller, three roller full width, temples, temple bracket mounting, various types of temple rollers. 5.5 Oscillating back rest, lease rods, loom brake.	**08**	**16**
06	**Weaving Accessories –** **Specific Objectives – The Student will be able to –** • understand functions of various weaving accessories. • Identify type and specifications of loom accessories. • Understand care for loom accessories during use and damage **Content –** Details of following plain loom accessories (function, count and calculations, case during use and storage) Shuttles, picker, buffer, picking band, heald reed – pitch baulk and all metal reed and reed count. Practice – Study of different types of shuttles reed, healds, buffer, picker.	**04**	**08**
07	**Fabric Defects –** **Specific Objectives – The Student will be able to –** • Identify fabric defects. • Understand causes and suggest remedies for fabric defects. Brief description, demonstration, causes and remedies for following defects occurring on the plain power loom. Missing end, float, shuttle smash, thick place, crack, double pick, double end, broken piece, reedy fabric or fabric with poor cover, all types of bad selvedges, temple marks, emery roller marks, starting mark, stains, gout.	**04**	**08**
08	**Weaving Calculations –** **Specific Objectives – The Student will be able to –** • Calculate loom speed, production and efficiency • Estimate time/no.of looms required for desired production.	**08**	**12**

	• Estimate weight of warp, weft and fabric. • Calculate reed count. • Estimate total no.of ends on a beam. 8.1 Calculations of loom speed, production and efficiency 8.2 Calculations of crimp%, warp weight, weft weight, fabric weight. 8.3 Calculations of heald and reed count for given sett, ends per beam for required width of the cloth.		
	TOTAL	**64**	**100**

Practices – Fabric Manufacturing – I

Intellectual Skills:

- Select Fabric and suitable loom for it's production.
- Draw sketches of various motions of a loom.
- Calculate speed, production and efficiency of a loom.

Motor Skills:

- Set and time various motions of loom.
- Operate power loom for production of different fabrics.

List of Practicals:

1. Study of ordinary pirn winding machine.

   Passage of yarn, functions of various parts, Drive to machine, speeds of different parts, calculations of productivity.
2. Study of automatic pirn winding machine.

   Passage of yarn, functions of various parts, Drive to machine, speeds of various parts, calculations of productivity.
3. Study of plain power loom

   Passage of warp, various motions of loom, loom timing indication, drive to loom, speeds of crank shaft, bottom shaft and auxiliary shaft, calculations of productivity per day.

   Dismantling, refitting, setting and timings of following mechanisms on a plain power loom.
4. Plain tappet shedding mechanism.
5. Cone over-picking mechanism.
6. Side lever under - picking mechanism.
7. Negative let-off and take-up mechanism.
8. Loose reed mechanism
9. Fast reed mechanism.
10. Loom brake, temple and oscillating back rest.

11. Study of plain loom accessories – shuttle, various healds, reeds, picker, buffer, temple rollers.
12. Study of various fabric defects mentioned in the syllabus, their causes and remedies.
13. Practice of loom running, knotting and drawing in to produce good quality cloth.

Learning Resources:

Books:

Sr. No.	Author	Title	Publisher
1	M.K. Talukdar	Winding and Warping	--
2	R. Sengupta	Yarn Preparation Vol. I & II	Popular Publications, Mumbai
3	N.N. Banerjee	Weaving Mechanism Vol. I & II	Textile Book House, 29, Krishnath Road, Behrampore 742 101(W.B.)
4	R. Marks A.T.C. Robinsons	Principles of Weaving	Textile Institute, Manchester (U.K.)
5	K.T. Aswani	Plain Weaving Motions	Mahajans Publishers, Ahmedabad
6	T.W. Fox	Mechanisms of Weaving	Universal Publications, Mumbai
7	Hasmukhrai	Fabric Forming	SSM Institute of Textile Technology, Tamilnadu
8	M.K. Talukdar, P.K. Shriramulu D.B. Ajgaonkar	Weaving Machines, Mechanisms, Management.	Mahajan Publishers Pvt.Ltd., Ahmedabad
9	R. Sengupta	Weaving Calculations	D.B. Taraporevasla Sons & Co. D.N. road, Mumbai
10	M.C. Paliwal P.D. Kimothi	Process Control in Weaving	ATIRA, Ahmedabad
11	NCUTE	Woven Fabric Production	NCUTE, New Delhi

Course Name : Diploma in Textile Manufactures

Course Code : TX

Semester : Second

Subject Title : Textile Testing - I

Subject Code : 17226

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
03	--	02	03	100	--	--	50@	150

Rationale:

There is variety of raw materials for textile manufacturing, such as cotton, silk, synthetic fibres, etc. These raw materials are being used individually or mixed in different proportions to form a yarn of desired quality. The raw materials can be tested for numerous characteristics like fibre length, fineness, strength, maturity etc. Intermediate products like sliver, roving etc. are also required to be tested for controlling the process, for optimizing the process parameters or for developing existing process. Finally, to ensure the quality product, final product that may be yarn, fabric or garment, testing is imperative. This subject intends to equip students with the concepts, principles and methods of testing of various textile fibres, which is helpful in selection of raw materials, process control, process optimization, quality assurance and research purpose.

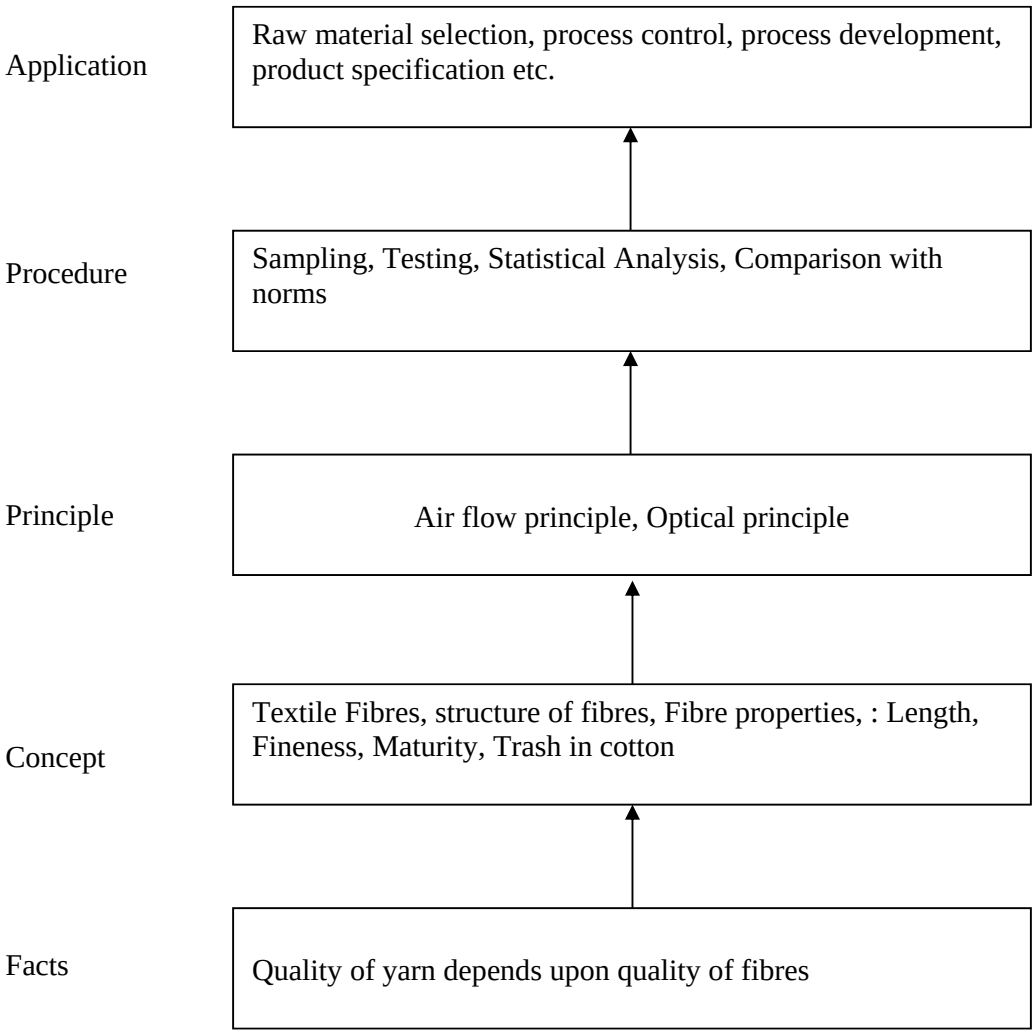
Since textile is system of mass production and contains lots of variations, lot of experimentation is required. Results obtained from specific in number of observations are to be analyzed, interpreted and used for best outcomes. Therefore, students are equipped with the methods to analyze the testing results statistically.

General Objectives:

Student will be able to:

1. Understand Basics of testing.
2. Measure fiber properties like fiber length, fineness and maturity.
3. Understand concept of nep and trash etc.
4. Interpret and correlate test results.
5. Apply knowledge in selection of raw-material and process control.

Learning Structure:



Detailed Contents:

Chapter	Contents	Hours	Marks
1	**Basics of Testing** **Specific Objectives** ➢ Know reasons and objectives of textile testing. ➢ List necessity of sampling. ➢ Identify different fiber sampling techniques. ➢ Identify different fibers. **1.1 Objects of Testing** i. Reasons for textile testing and its objectives. **1.2 Fiber Sampling** i. Sampling and its necessity ii. Factors governing sampling methods. iii. Definitions : Random sample, Biased sample, Numerical sample, Length biased sample iv. Fiber sampling Techniques: Zoning technique (BS 2545-1965), Core Sampling, Squaring method, Cut squaring method. 1.3 **Fiber Identification** i. Burning, Solubility, Microscopic test for Cotton, Wool, Jute Viscose & Polyester.	**10**	**18**
2	**Moisture Relations in Textiles** **Specific Objectives** ➢ Use concepts of humidity and regain in textiles. ➢ Interpretation of effects of moisture on process and fiber properties. Definitions: Humidity, Absolute and Relative Humidity Moisture content, Moisture regain, Effects on Moisture Regain on Processing and fiber properties.	**05**	**08**
3	**Specific Objectives For: Fiber Length, Fiber Fineness and Maturity** ➢ Describe process of fiber testing to assess fiber length, fiber fineness and fiber maturity. ➢ Use appropriate method of testing of fiber. **3.1 Fiber Length** **22 Mark** i. Fiber length: Concept, Technical significance of fiber length. ii. Definitions : Effective length, mean length, upper quartile length, span length, uniformity ratio , uniformity index iii. Method of determination of fiber length- Hand Stapling, Oil Plate Method, Comb Sorter (IS:233 Part-I to VI 1978), Digital Fibro graph(ASTM D 1447-89 re-approval 1994, IS:233 Part-I to VI 1978),	**10**	**62**
	3.2 Fiber Fineness **22 Mark** i. Fiber fineness Concept, Technical significance of fiber Fineness ii Measures of fiber fineness: Micronnaire, denier and decitex. iii. Method of determination of fineness:- Gravimetric method, Microscopic method, Air-flow principle -Micronnaire Instrument (ASTM D-1448-97, BS3181:1968)	**10**	
	3.3 Fiber Maturity **18 Mark** i. Cotton fiber maturity : Concept, Technical significance ii Factors affecting maturity of cotton	**08**	

	iii. Method to determine fiber maturity: - Caustic soda method, (IS 236-1968, ASTM-D-1442-93, BS-3085-1968) Causticaire method, Differential dyeing.		
4	**Trash Content & Neps in Cotton** **Specific Objectives** ➢ Based on characteristics of cotton identify type of cotton grading. ➢ List points on which grading of cotton is done. ➢ Interpretation and measurement of trash. 4.1 Concept, significance and classification of trash. 4.2 Determination of trash content in cotton using Shirley Trash analyzer (ASTM D-2812-95). 4.3 Cotton grading: American, Egyptian & Indian cotton grading. 4.4 Neps: Concept, Definition, Causes and Consequences.	**05**	**12**
	TOTAL	**48**	**100**

Practical:
Skills to be developed:

Intellectual skills:

1. Proper selection of measuring instruments depending upon the data and precision required.
2. Analyze properties of matter & their use for the selection of material.
3. To interpret the results from observations and calculations.
4. To use these results for corrective actions in mechanical and wet processing.

Motor skills:

1. Proper handling of instruments.
2. Measuring physical dimensions of yarn and fabric accurately.
3. To observe the phenomenon and to list the observations in proper tabular form.
4. To adopt proper procedure while performing the experiment.

List of Practical:

1. To select the fiber samples by zoning method.
2. To determine trash content in cotton.
3. To determine fiber length parameters by oil plate method.
4. To determine fiber length parameters using comb sorter.
5. To determine fiber length parameters using digital fibrograph.
6. To determine fiber fineness by cut and weight method.
7. To determine fiber fineness by Air flow principle based fiber fineness tester.
8. To determine fiber fineness by optical method.
9. To determine fiber maturity by caustic soda method.
10. To identify textile fibres by Microscope.
11. To determine moisture regain and moisture content of textile material.

Learning Resources:
References:

Sr. No.	Author	Title	Publisher
1	W.E. Morton & J.W. Hearle	Physical Properties of Textile Fibers'	--
2	--	Hand book of Textile Testing	Bureau of Indian Standards
3	John Skinkle	Textile Testing, Physical, Chemical & Microscopic	--
4	J. E. Booth	Principles of Textile Testing	--
5	Kothari	Testing & Quality Management	IAFL, New Delhi
6	Hamby & Grover	Hand book of Textile Testing & Quality Control	--
7	B. P. Saville	Physical Testing of Textiles	--
8	--	Methods of Tests, Fibre, Yarn & Fabric	CIRCOT, Mumbai
9	R. B. Beevers	Experiments in fibre physics	--
10	Websites:	1) www.scribd.com 2) www.fibre2fashion.com	--

Course Name : All Branches of Diploma in Engineering and Technology.

Course Code : AE/CE/CH/CM/CO/CR/CS/CW/DE/EE/EP/IF/EJ/EN/ET/EV/EX/IC/IE/IS/ ME/MU/PG/PT/PS/CD/CV/ED/EI/FE/IU/MH/MI/DC/TC/TX

Semester : First

Subject Title : Computer Fundamentals

Subject Code : 17002

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
01	--	04	--	--	50#*	--	25@	75

*** On Line Examination**

Rationale:

Since early 21st Century the use of Computer has been so rapidly that it is difficult to think of an area where computers are not being used. It is very desirable that everyone should have good knowledge of computer.

Main purpose of this subject is how to use a computer for basic needs. This subject covers application softwares like MS-Word, MS-Excel, MS- PowerPoint.

It is a gateway to wonderful world of information and part of various applications like business, academic, hospitals, construction, designing, chemical fields and many more.

Intellectual Skills:

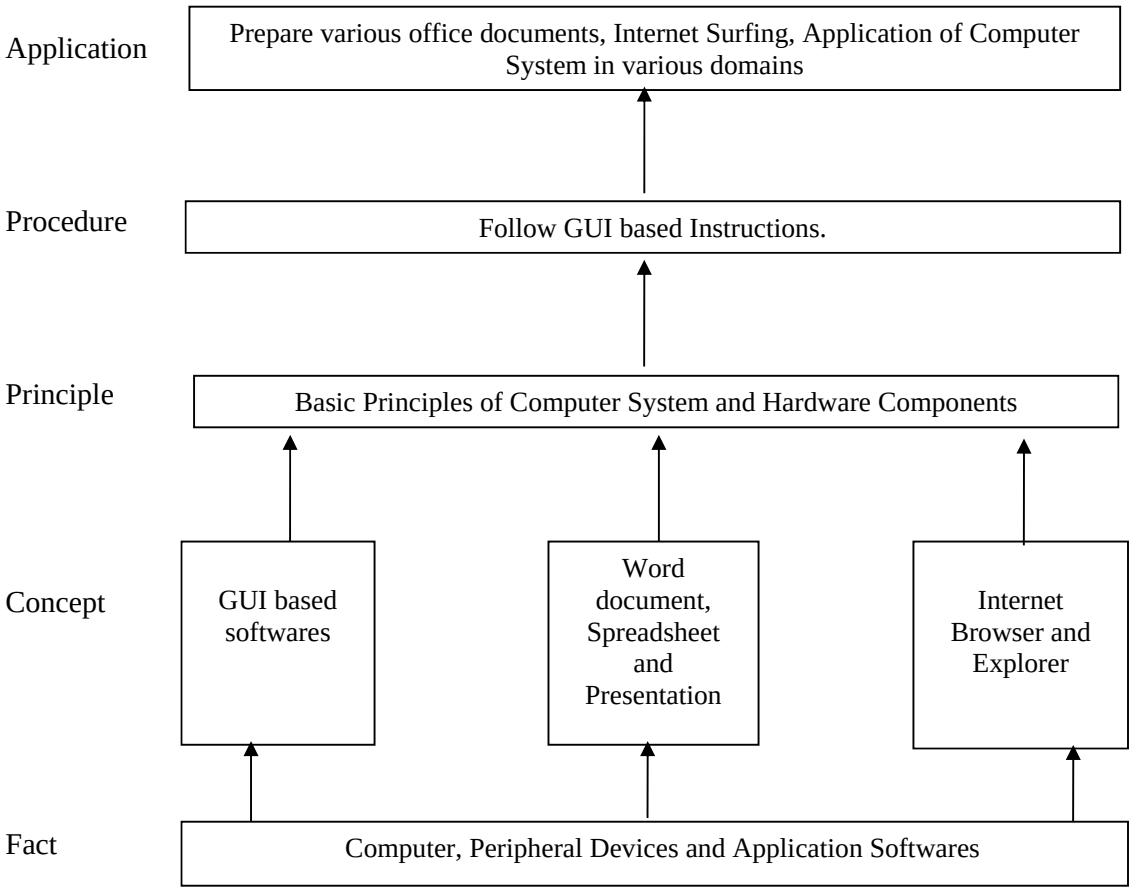
Students should be able to:

1. Use of Operating System.
2. Use MS- Word, MS-Excel, MS- PowerPoint, efficiently for documentation.
3. Use browser for accessing Internet.

Motor Skills:

Handle Personal Computer System.

Learning Structure:



Contents:

Note:

1. It is suggested that the separate batch should be formed for students having less computer background.
2. Contents of theory are to be taught in practical period with the help of LCD projector.

Sr. No	Activity/Topics	Hours
1	• **Algorithms**-Introduction, Three Basic Operations, Procedures and Programs	**1**
2	• **Data Representation-** Representing different symbols, minimizing errors, Representing more Symbols, Generic Formula, the ASCII code, the EBCDIC code, Rules of Decimal number System and its conversion to binary • **Multimedia-** Digital images, analog to digital conversions, digital audio and digital video	**2**
3	• **Binary Arithmetic-** binary addition, binary subtraction, multiplication and division • **Logic Gates**- The need for derived gates, Half adder, Full adder, Logical operations	**2**
4	• **Data Storage- memory-**Main Memory, Memory data transfer, MBR, Memory decoders -1x2,2x4…10x1024, MAR, Address, Data and Control Buses, Load and Store Instructions, Word and Word Length, RAM and ROM, Cache Memory • **Data Storage- Disk-** Memory Hierarchy, Disk basics – Cylinders, Tracks, Surfaces, Sectors, Relationship between logical and physical records, Disk Controller Architecture, Sector format, Formatting Process, Seek Time, Rotational Delay and Transmission time, The relationship between Application program, Operating System, Disk Controller and the actual disk, CDs, DVD • **VDU and Printers-**Human-computer interface, Keyboard, Raster Scanning, Frame Buffer, Basics of Graphics, Black and White/ Color Terminals, Text based terminals, LEDs/LCDs, Inkjet Printers, Laser Printer	**3**
5	• **Computer Architecture-**CPU Registers, Multiplexers, ALU, Instruction Format, Instruction Decoding, Instruction Execution Cycles • **Operating System-**Concepts of system calls, Multiprogramming, Concepts of Context Switch, Different Services of Operating System, Information Management , Process Management (Process states, Process State Transition, Process Scheduling), Memory Management (Fixed Partition, Variable Partition, Paging, Demand Paging)	**2**
6	• **Classification of Computers and applications**- Characteristics of Computers, What Computers can do, What computers can't do, Classification of Digital Computer Systems, Anatomy of a Digital Computer	**1**
7	• **Introduction to Computer** Usage of computer system in different domains like office, book publication, ticket reservation, banks etc. Components of PC – Mouse, keyboard, CPU, monitor, printers, scanners, modem, memory, sound cards, pen drives.	**1**

8	• **Introduction to Operating System(Windows 7)** Working with Windows desktop, icons, taskbar, menu bar options, My Documents, My Computer, Control Panel, Recycle bin Concept of drives, folders, files Windows accessories – Notepad, WordPad, paint, clock, calendar, calculator	**1**
9	• **GUI Based Software – MS – Office 2010** MS-Word – Opening menus, toolbars, opening and closing documents, clipboard concept MS – Excel – Working and manipulating data with excel, formulas, functions, chart and its types MS – PowerPoint – Working with PowerPoint and presentation ,Changing layout, Graphs , Auto content wizard ,Slide show, Animation effects, Normal, outline, Slide sorter, Reading view.	**2**
10	• **Internet** History of Internet, equipments required for Internet connection, browser (Internet Explorer, Mozilla and Firefox, Google Chrome)	**1**
	Total	**16**

List of Practicals / Activities

Sr. No	Practicals / Activities
1	• Demonstration of above peripheral devices to students
2	• Moving from one window to another window • Opening task bar buttons into a window. • Arranging icons on the desktop and create shortcuts.
3	• Creating folders and files. • Copy, rename, delete files and folders. • Moving folders and files from one drive to another drive.
4	• Create and edit notepad document. • Create and edit WordPad document. • Create paint file by using different drawing tools.
5	• Creating, editing, saving word document. • Entering and formatting text. • Paragraph formatting, use bullets and numbering. • Page formatting – page margins, page size, orientation, page break, headers and footers. • Create tables, insert, and delete rows and columns. • Printer installation and printing document. • Create and print mail merging address for envelop and letters.
6	• Create, open and print worksheet with page setup and print options. • Enter data and format cells. • Select, insert, delete cells, rows and columns. • Insert formulas, functions and named ranges in worksheet. • Create chart of different types.
7	• Create a simple text slide using formatting, Selecting a slide layout. And insert pictures & backgrounds. • Insert auto shapes, clip-arts and form group/un group objects from slides. Apply slide transitions and slide timings and animation effect for slide show
8	• Perform Internet connection.

	• Create own e-mail id, send and receive mail with attachment. • Searching information using search engine (Google, MSN, bing etc.) • Do Internet chatting and understand the chat toolbar. • Organize favorite websites in different browsers.

Learning Resources:

1. Books:

Sr. No	Author	Title	Publisher
1	Achyut Godbole	Demystifying Computer	TMH
2	Alexis Leon	Introduction to Computers	Vikas Publishing House
3	Vikas Gupta	Comdex Computer Course Kit (Windows 7 with Office 2010)	Dreamtech Press
4	Steve Schwartz	Microsoft Office 2010	Pearson
5	Elaine Marmel	Microsoft Project 2010 (Bible)	Wiley India
6	Preppernau Cox	Windows 7 Step by Step	PHI

2. Links:

1. http://www.psexam.com
2. http://www.gcflearnfree.org/office
3. http://www.softwaretrainingtutorials.com/ms-project-2010.php
4. http://www.7tutorials.com

List of Equipments/Tool:

Hardware Tools-

1. Computer System (Pentium –IV or higher version)
2. Printer
3. Modem
4. Pen Drive

Software Tools-

1. Windows- 7 (Operating System)
2. MS-Office 2010
3. MS- Project 2010
4. Internet Explorer/Mozilla/Chrome/Firefox

Guidelines for Online Exam:

1. Total duration for online examination is an hour.
2. There will be theoretical multiple choice questions.
3. There will be certain practical performance based questions.

Course Name : All Branches of Diploma in Engineering and Technology

Course Code : AE/CE/CH/CM/CO/CR/CS/CW/DE/EE/EP/IF/EJ/EN/ET/EV/EX/IC/IE/IS/ ME/MU/PG/PT/PS/CD/CV/ED/EI/FE/IU/MH/MI/DC/TC/TX/AU

Semester : Second

Subject Title : Development of Life Skills

Subject Code : 17010

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
01	--	02	--	--	--	25@	--	25

Rationale:

Globalization has emphasized the need for overall development of technician to survive in modern era. Soft skills development in addition to technical knowledge; plays a key role in enhancing his/her employability.

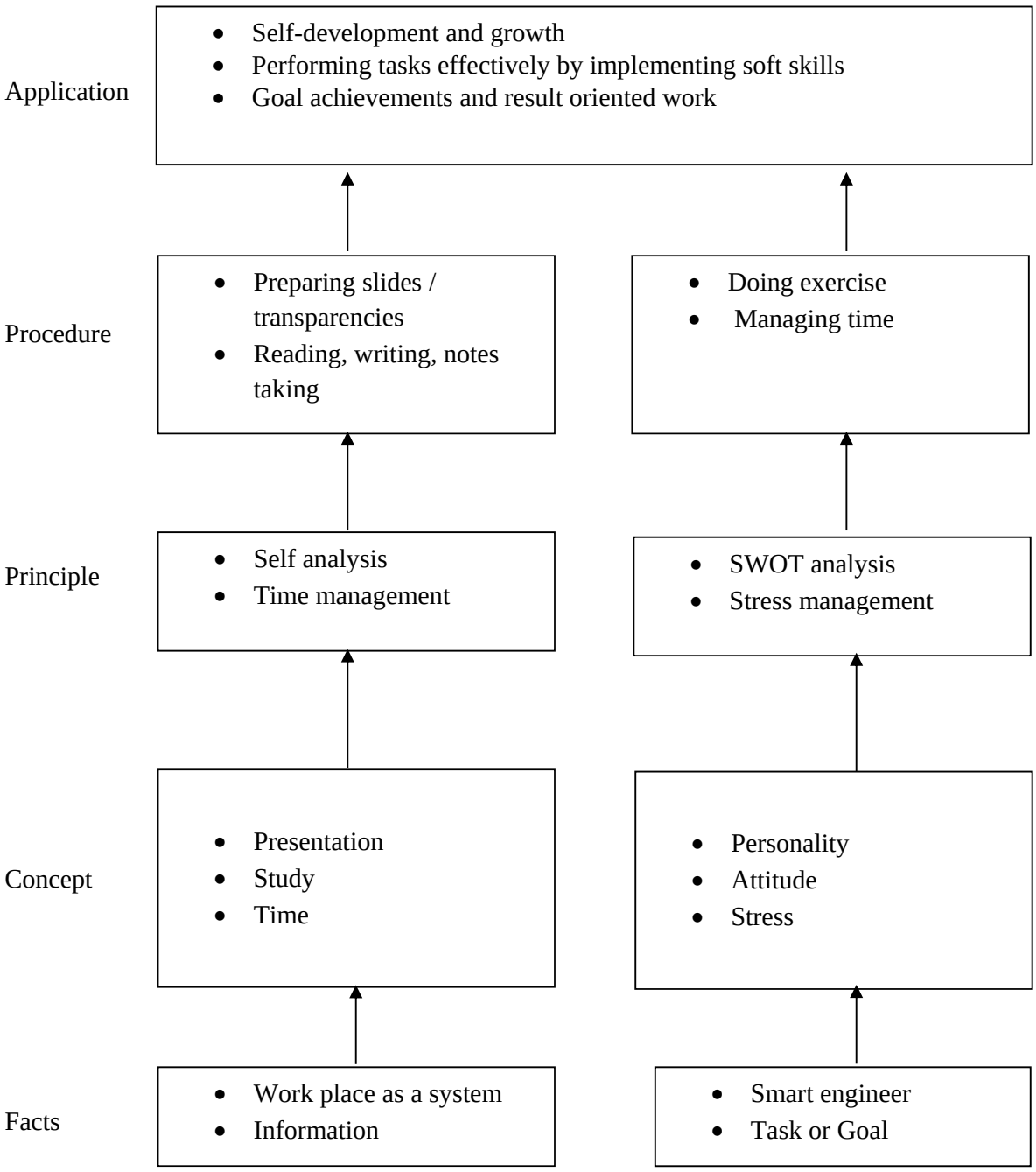
This subject aims to provide insights into various facets of developing ones personality in terms of capabilities, strengths, weakness, etc as well as to improve reading, listening and presentation skills. Also in this age fierce competition, the time and stress management techniques will immensely help the technician to live happy and purposeful life.

General Objectives:

After studying this subject, the students will be able to:

1. Understand and appreciate importance of life skills.
2. Use self-analysis and apply techniques to develop personality.
3. Use different search techniques for gathering information and working effectively.
4. Improve the presentation skills.

Learning Structure:



Theory:

Topic and Contents	Hours
TOPIC 1: SELF ANALYISIS Specific Objectives: ➢ To introduce oneself. Contents: 1.1 Need of Self Analysis 1.2 Attitude and types (positive, negative, optimistic and pessimistic) Guidelines for developing positive attitude.	02
TOPIC 2: STUDY TECHNIQUES Specific Objectives: ➢ To identify different process and strategies. ➢ To improve reading, listening and notes taking skills. Contents: 2.1 Learning strategies 2.2 Learning process 2.3 Organization of knowledge 2.4 Reading skills 2.5 Listening skills 2.6 Notes taking 2.7 Enhancing memory	03
TOPIC 3: INFORMATION SEARCH Specific Objectives: ➢ To search information as per the need. Contents: 3.1 Sources of information 3.2 Techniques of information search (library, internet, etc)	02
TOPIC 4: SELF DEVELOPMENT Specific Objectives: ➢ To set primary goals using SMART parameters. ➢ To Priorities the work effectively. ➢ To cope up with stress effectively. Contents: 4.1 Goal setting and its importance. 4.2 Characteristics of Goal setting (**SMART**- **S**pecific, **M**easurable, **A**ttainable, **R**ealistic, **T**ime bound) 4.3 Time Management - Importance, prioritization of work, time matrix, time savers, and time wasters. 4.4 Stress Management - Definition, types of stress, causes of stress, managing stress, and stress busters.	06
TOPIC 5: PRESENTATION TECHNIQUES Specific Objectives: ➢ To plan for presentation. ➢ To prepare contents for presentation.	03

Contents: 5.1 Importance of presentation. 5.2 Components of effective presentation (Body language, voice culture, rehearsal, etc.) 5.3 Preparing for presentation. 5.4 Use of audio/video aids. (audio, video, transparency's, PowerPoint presentations, etc.) 5.5 Performing presentation (Seminars, paper presentations, compering, etc.)	
Total	**16**

Practical:
Skills to be developed:

Intellectual Skills:

Student will be able to

- Develop ability to find his capabilities.
- Select proper source of information.
- Follow the technique of time and stress management.
- Set the goal.

Motor Skills:

Student will be able to

- Follow the presentation of body language.
- Work on internet and search for information.
- Prepare slides / transparencies for presentation.

List of Practicals/activities:

1. Giving self introduction. Observe the demonstration of self introduction given by the teacher and prepare a write up on the following points and introduce yourself in front of your batch in 5 minutes
   - Name
   - Native place
   - Background of school from where he / she passed
   - Family background
   - Hobbies / salient achievements / idols if any for self development
   - Aims of life as an Engineer
2. Provide responses to the questions based on the moral story given in the assignment.

3. Judge your attitude by responding to the tests given in the assignment and write comments on your score.
4. Read any chapter from the subject of Engineering Physics / Engineering Chemistry and identify facts, concepts, principles, procedures, and application from that chapter
5. Participate in the panel discussion on techniques of effective learning and provide the responses to the questions.
6. Access the book on Biography of Scientists/Industrialist/Social leader/Sports Person from library. Read the book and note the name of author, publication, year of publication, and summarize the highlights of the book.
7. Prepare notes on given topic by referring to books / journals / websites.
8. Prepare 8 to 10 power point slides based on the notes prepared on the above topic. Present the contents for 10 minutes Group wise(Group will be of 4 students)

Note – Subject teacher shall guide the students in completing the assignments based on above practical.

Learning Resources:
Books:

Sr. No.	Author	Name of Book	Publication
1	Richard Hale and Peter Whitlam	Target setting and goal achievement	Kogan Page
2	Andrew Bradbury	Successful Presentation Skills	The Sunday Times – Kogan
3	Ros Jay and Antony Jay	Effective Presentation	Pearson – Prentice Hall
4	Subject Experts - MSBTE	Handbook on Development of Life Skills	MSBTE
5	Nitin Bhatnagar and Mamta Bhatnagar	Effective Communication and Soft Skills	Pearson
6	D. Sudha Rani	Business Communication and Soft Skills	Pearson
7	Barak K Mitra	Personality Development and Soft Skills	Oxford University Press
8	Dr. T. Kalayani Chakravarti and Dr. Latha Chakravarti	Soft Skills for Managers	Biztantra