

**DEPARTMENT OF TEXTILE TECHNOLOGY**  
**SGGS INSTITUTE OF ENGINEERING & TECHNOLOGY VISHNUPURI, NANDED**  
*Proposed Scheme for Second Year (TEXTILE TECHNOLOGY)*  
**For 2009-10 FY Admission**  
*(To be introduced in 2010-11)*

<b>III Semester</b>					
S. N.	Title of the Course	Credits	Lecture/ Week	Tutorial/ Week	Practical/ Week
MA283	Engineering Mathematics III	04	04	00	00
TT231	Yarn Manufacture I	04	03	00	02
TT232	Weaving Technology I	04	03	00	02
TT233	Textile Testing I	04	03	00	02
TT234	Fiber Forming Polymers & Natural Fibers	03	03	00	00
CS283	C++ & Computer Graphics	04	03	00	02
	<b>Sub Total</b>	<b>23</b>	<b>19</b>	<b>00</b>	<b>08</b>
<b>IV Semester</b>					
MA284	Engineering Mathematics IV	04	04	00	00
TT235	Yarn Manufacture II	04	03	00	02
TT236	Weaving Technology II	05	04	00	02
TT237	Textile Testing II	03	02	00	02
TT238	Textile Wet Processing I	04	03	00	02
TT239	In Plant Training & Seminar	01	00	00	02
HU201	Communication Skill	01	00	00	02
	<b>Sub Total</b>	<b>22</b>	<b>16</b>	<b>00</b>	<b>12</b>
	<b>Grand Total</b>	<b>45</b>	<b>35</b>	<b>00</b>	<b>20</b>

**Examination System:**

The evaluation of theory courses and practicals will be done as per the Institute rules as given in the prevailing Rules and Regulation book.

**Attendance Criteria:**

Students must have to maintain a minimum attendance (as mentioned in Rules and Regulation book) in all the registered courses in a semester to be eligible to appear in examinations.

**Industrial Visit:**

Second year students compulsorily have to visit textile industries/ research laboratories/ textile institutes as planned by the department during third/fourth semester.

**Industrial Training:** Every student will have to go to industrial training compulsorily for three weeks duration at the **end of the third semester**. Students have to submit a bound copy of their respective training report to the department and also have to appear for **viva-voce in the fourth semester** of second year.

## Semester-I:

### MA283: Engineering Mathematics III (L4-T0-P0): 4 Credit

---

To be given by the Department of Mathematics

### TT231: Yarn Manufacture I (L3-T0-P2): 4 Credit

---

**Cotton & Ginning:** Brief outline of spinning process, Cotton fibre properties and their importance in spinning, Ginning of cotton, Mechanism and working of different types of gins and their limitations, Defects/ problems in ginning, Ginning performance and lint characteristics

**Mixing & Blending:** Objects and importance, Fundamentals of mixing and blending. Methods and techniques of blending, Measures of blending, Faults in blending, Prediction of blended yarn properties- Hamburger's model. Blending delay time, Bale Management

**Opening and Cleaning:** Principle of opening and cleaning, modern concepts. Components of blow room machines- feeding and opening devices, grids and others. Construction and working of blow room machinery. Conventional and Automatic bale openers. Step cleaner, Super jet cleaner, Airflow cleaner, Monocylinder, Multimixers and auto mixers, RN cleaner, Porcupine opener, ERM cleaner etc.

Scutcher- working and functions, Bladed beaters, Kirschner beater, Feed regulating device. Cone - drum mechanism. Cage-condenser, Lap defects

Blow room lines for various types of cotton. Transportation of material, Dust removal, Metal extractors and waste disposal in blowroom

Evaluation of blow room performances- cleaning efficiency, degree of opening, nep generation, lap weight variation, degree of opening and fibre breakage.

**Advances in Blowroom:** Cleanomat and Tuftomat openers & cleaners. Modern blow room lines, Concept of cleanability of cotton, C-factor and  $T/C^2$ , Modern developments

#### Practicals:

1. Study of working mechanism of a bale breaker / bale opener. Calculate the rotational speed of evener roller and linear speed of the inclined lattice. Also calculate the number of rows of evener spikes passing per linear meter movement of spiked lattice.
2. Determine the cleaning efficiency of any opener / cleaner by Shirley analyzer. Also indicate the influence of trash composition on cleaning efficiency of the same opener.
3. Study the working mechanism of a bladed beater. Determine the intensity of beating (beats/cm) of a bladed beater. Also calculate the beater speed and feed rate.
4. Determine the degree of opening of fiber tufts. Compare opening of fibre tufts before and after processing through an opener.
5. Determine the position of the belt on the cone drums due to step change in thickness of the material passing in between the pedals and pedal rollers.

6. Study of the lap length control mechanism. Determine lap length constant of a scutcher. Also plot a graph of lap length vs change gear teeth.
7. Determine nep count in No. of neps per gram from a given lap.
8. Determine lap hank and also find out metre-to -metre variation in the form of CV% of a given lap.

**References Boks:**

1. The Technology of Short Staple Spinning, (Short Staple Spinning Series, Vol.-I), **W. Klein**
2. A Practical Guide to Opening and Carding, (Short Staple Spinning Series, Vol.-II), **W. Klein**
3. Spinning of Manmades and Blends on Cotton System, **K. R. Salhotra**
4. Spun Yarn Technology, (Vol.-I) **Venkatsubramanium**
5. Textile Progress (Vol. 24, No-2 ), The Textile Institute, Manchester

## **TT232: Weaving Technology I (L3-T0-P2): 4 Credit**

---

Outline of various fabric formation methods, Classification of looms and their weft insertion rates.

**Shedding:** Function of shedding, Types of shed, principles and their use, Movements of healds, Construction of shedding tappet for plain and twill weave, Geometry of warp shed, Positive tappet shedding, Link mechanism. Heald reversing motions –such as roller reversing motion, clock spring reversing motion, Shed timing, early and late shedding. Shedding required for cotton and synthetic yarn. Different types of healds, heald count

**Picking and shuttle checking Mechanisms:** Function of picking, Methods of weft insertion. Over picking & under picking, Timing of picking, Disadvantages of shuttle picking. Calculations relating to power of picking and theory of picking, Ideal Shuttle checking. Movement of shuttle during checking, Early & late picking and their uses

**Beat-up Motion:** Function. Parts involve in beat-up motion. Beat up mechanism. Kinematics of sley, eccentricity of different looms and their causes, calculation related to eccentricity. Sley dwell. Types of reed & reed count and their calculations

**Take up Motions:** Seven wheel motions and related calculations. Positive take up motion, Periodicity observed because of defective gears

**Let-off Motion:** Let off motion its requirement, details of negative let-off.

**Different Motions:** Side weft fork, centre weft fork. Warp stop motion- mechanical and electrical. Loose reed & fast reed motion, Different type of temples and their uses.

**Drafts, Drawing – in and denting – in:** Systems of drawing, drop pinning and denting, Different drawing operations such as manual, semiautomatic & automatic type, Knotting operation & its need.

Temples, types of temples such as ring, roller, sun, nipper, and full width temple

**Fabric Designing:** Graphical representation of a fabric. Types of draft, denting order, peg plan. Plain weaves and its derivatives.

**Practicals:**

1. Study of shedding mechanism & its timing and setting.
2. Study of over pick mechanism and its timing and setting.
3. Study of beat – up mechanism (Dismantling & fitting)
4. Study of seven wheel take-up mechanism & its calculations.
5. Study of let-off mechanism.
6. Study of warp protection motion.
7. Study of side weft-fork mechanism.
8. Study of anti-crack motion & loom brake.
9. Practice in running of plain over pick loom.
10. Practice in drawing-in and knotting.

**Reference Books:**

- 1 Weaving Machines Mechanisms and Managements- **M.K.Talukdar, P.K. Sriramulu & D.B Ajgaonkar**
- 2 Principles of Weaving – **Marks & Robinson.**
- 3 Mechanism of Weaving Machines - **J.L.Chakravorty.**
- 4 Weaving Mechanism – **N.N. Banarjee.**
- 5 Weaving Calculation – **Sen Gupta**
- 6 Elementary Textile Designing - **William Watson**

**TT233: Textile Testing I  
(L3-TO-P2): 4 Credit**

---

**General Fibre Testing:** Fibre sampling methods, Fibre length- importance, Fibre fineness- air flow principle, Measurement of fibre properties by the High Volume Instrument (HVI), Trash content in cotton and its measurement, Maturity of cotton- importance and measurement, Cotton grading.

Moisture content and moisture regain, Factors influencing regain, Regain & fibre properties, Regain hysteresis, Measurement of regain, Fibre friction - importance and measurement.

**General Yarn Testing:** Yarn count, various direct and indirect systems and conversion, Count tester, Twist and its relation with count, Twist and yarn strength, Twist measurement for single and double yarns. Yarn friction measurement.

Yarn Crimp and its measurement, Yarn hairiness and its measurement, Influence of fibre and yarn parameters on hairiness Yarn appearance.

**Tensile Testing:** Tensile behaviour of textiles, Factors affecting tensile properties of textiles, Concept of CRT, CRE and CRL principles, Working mechanism and details of Pendulum lever machines, Stelometer, Instron, Ballistic tester, Brief idea of Tensorapid and Tensojet.

**Practical:**

1. Determine fiber parameters of cotton using MVI.
2. Determine Trash% in cotton.
3. Determine maturity of cotton by Caustic soda method.
4. Identify different natural fibres through longitudinal and cross sectional views.

5. Identify different synthetic fibres through longitudinal and cross sectional views.
6. Determine the moisture regain.
7. Determine count of sliver and express it in various systems.
8. Determine count of roving and express it in various systems.
9. Determine count of yarn and express it in various systems.
10. Determine single yarn twist.
11. Determine single fiber strength and elongation using Instron.

### Reference Books:

1. Principles of Textile Testing - **J. E. Booth**
2. Physical Properties of Textile Fibers - **W. E. Morton and J. W. S. Hearle**
3. Testing and Quality Management (Vol. 1) - **Edited by V.K. Kothari**

## **TT234: Fiber Forming Polymer & Natural Fibers (L3-TO-PO): 3 Credit**

---

**Polymer types:** Thermoplastics and thermosets, Linear and cross linked polymers. Fibers, rubber and plastics, Stereo regularity in polymers, Co-polymers

**Polymer Synthesis:** Step growth and chain growth polymerization. Mechanism of linear step growth polymerization, Reactivity of functional groups, Carother's theory, Chain polymerization, Free radical polymerization, initiation, propagation and termination

**Molecular weights:** Concept of molecular weight and its distribution. Methods of measurements of number average and weighted average molecular weights. End group analysis. Viscosity average molecular weight, Gel permeation chromatography, Molecular weight of different fibers

**Fibre Classifications & Natural Cellulosic Fibres:** Essential and desirable properties of textile fibres, Textile fibre classifications

Cotton fibre: Morphology, Fine structure, Chemical structure, Physical & chemical properties, Oxy-cellulose and hydrocellulose

Brief idea of Jute fibre production, Chemical composition, Morphology, Physical and chemical properties and end uses, Introduction to other natural fibres like Flax, Banana, Coir

### **Natural Protein Fibres:**

Silk fibre: Cultivation of mulberry silk & fibre production, Morphology and brief idea of fine structure, Chemical structure, Physical and chemical properties.

Wool Fibres: Morphology and brief idea of fine structure, Chemical composition and structure, Physical and chemical properties.

### Reference Books:

1. Text Book of Polymer Science – F.W Billmeyer,Jr.
2. Polymer Science- Gowarikar, V.R., Viswanathan, N.V. & Sreedhar, J..
3. Introduction to Polymers – R.J.Young & P.A.Lovell
4. Textile Science – Gohl, E.P.G. & and Vilensky, L.D.
5. Textile Fibres- Murthy.
6. Textile Fibres- Shenai

## **EC283: C++ and Computer Graphics (L3-T0-P2): 4 Credit**

---

**01.** Overview of C & Introduction to C++ .Structured versus object oriented development, Elements of OOP, objects, classes, Encapsulation, Inheritance, polymorphism, message communication.

**02.**Classes and Objects: Class specification, class objects, member access, defining member functions, constructors and destructors, passing and returning objects as arguments, friend functions.

**03.** Polymorphism and Inheritance: Method, function, and operator overloading; Derived class declaration, forms of inheritance, inheritance and member accessibility

**04.** Graphics: Graphics library of Turbo C/C++ : preliminaries- display adapters, graphic mapping, resolution, coordinates etc; text in graphics mode, drawing graphics- line, circle, arc, polygon etc. Bit images, animation

### **Practicals:**

Minimum Eight experiments based on above syllabus.

### **Reference Books:**

1. Object oriented programming with C++ - by E. Balguruswamy
2. K.R,Venugopal et al; Mastering C++, Tata Mcgraw Hill Pub.
3. Herbert Schildt, Teach Yourself C++, Tata Mc Graw Hill Pub.
4. Mastering Turbo C, Stan Kelly- Bootte, BPB Pub

---

## **Semester-II:**

### **MA284: Engineering Mathematics IV (L3-T1-P0): 4 Credit**

---

To be given by the Department of Mathematics

### **TT235: Yarn Manufacture II (L3-T0-P2): 4 Credit**

---

**Carding:** Principle of carding, design and working of carding machine, Drive of carding machine- speeds, drafts and production calculations, Lap feeding and chute feeding, flock feed regulating mechanism, Action between feed rolls and licker-in. Licker-in zone details and various modifications, carding segments

Concepts of carding, Action between cylinder and flats, Forces acting on fibre tufts in carding zone, Analysis of flat actions, flat movements, Carding force and factors affecting it. Flat strip and its control

Fibre transfer from cylinder to doffer, Mechanism of hook formation and factors affecting it, Doffer comb action, Details of modern web stripping devices, Types of coiling, Coiling mechanism

Card clothing, Geometry and specification of licker-in cylinder, doffer and flat wires, Grinding of metallic wires, Settings in card, Carding faults, Mechanism of nep formation, assessment of neps in carding.

Transfer efficiency and cylinder load. Determination of transfer efficiency and factors affecting it, Design features of High production Cards. Auto levelers in cards

**Drawing:** Objects, working of draw frame, Drive of draw frame, draft and production, calculation. Functions of different components in a drafting system, Conventional drafting and draft distribution, Shirley drafting concepts, Various modern drafting arrangements and working. Roller setting, Stop motions, Auto-levellers in draw frame.

Principle of roller drafting, concept of ideal drafting, Draft and drafting force, Doubling, Law of doubling, Law of addition of irregularity, Causes and control of irregularity of a drafted textile strand. Roller lapping- cause and remedies. Concepts of hook removal in drawing- forces assisting and resisting, Method of wrapping, Design features of modern high speed draw frames

### **Practicals:**

1. Study of the general features of the carding machine. Draw a diagram of the carding machine showing all parts and components with their dimensions.
2. Determine the feed roller, licker-in, cylinder and doffer speeds and drafts between any two of these rollers of the carding machine. Also calculate the draft constant and production constant.
3. Study of web doffing device. Calculate the speeds of various rollers of the related device and table calends roller. Also calculate production of the card.
4. Study of the coiling mechanism. Also find the coiling speed and circumferential shifts of coils along the periphery of the can.
5. Study of the flat driving mechanism in the card. Calculate the flat speed from the gearing.
6. Various setting of a card. All major settings are to be studied.
7. Study of draw frame and its drive. Calculate the speeds of the rollers of the drafting system and also the speeds of other moving parts. Also calculate the production of the machine.
8. Study of the drafting system of draw frame. Calculate the draft and draft constant of the drafting system.

### **References:**

1. A Practical Guide to Opening and Carding, (Short Staple Spinning Series, Vol.-II)- **W. Klein**
2. A Practical Guide to Combing and Drawing, (Short Staple Spinning Series, Vol.-III)- **W. Klein**
3. Spun Yarn Technology (Vol. II)- **Venkatsubramaniam**
4. Textile Mathematics (Vol. II)- **J.E. Booth**

## TT236: Weaving Technology II (L4-T0-P2): 5 Credit

---

**Winding:** Objects of winding, Type of winding & their specialty, Type of package on warp winding including modern machines and their place of application, Sequence of Weaving preparation process. Methods of package drive such as Surface driven & spindle driven (including synthetic yarn winder), types of winds, angle of wind, wind per double traverse, coil angle of different yarn package, calculations. Gain in package building. Classification of clearers and their setting, , different types of Tensioners, Winding tension variation and their control, Different types of winding drums, Ribbon breaking devices in winding, Yarn faults, clearing efficiency, optimum clearing. Different types of knots, splicing and their importance, different types of splicer, their mechanism and comparisons, Uniform build of yarn package, theory and practices. Yarn ballooning & their control. Features of new generation winders such as Counter rotating flyers, traverse variation, Step precision winder, Penta precision winder. Features of Autoconer 338, Savio & Murata winders. Winding on TFO twister-out line.

**Weft Winding:** Brief introduction of weft winding and its requirements, Mechanism of package built up of a modern winder (Lakshmi Schweiter).

**Warping:** Object of warping, different type of creels. Features of a modern drum driven warping machine, Description of a modern warping machine, Sectional warping and its requirements, calculations regarding taper angle etc. Description of a modern sectional warping machine, Calculations of speed and other parameters, Draw warping and its advantages.

**Sizing:** Object of sizing, sizing ingredients and their functions for cotton and synthetic yarns. Common starches & adhesives used in sizing for cotton and synthetic yarn. Study of modern sizing machine with reference to creel, sow-box, cylinder and beam drives, mechanics of drying, Drying methods like hot air and cylinder drying - advantages and disadvantages, Modern system of drying, Different control systems used in sizing such as - level controller, stretch controller, temperature controller and moisture controller. Calculations regarding add on %, pick up %, steam requirement, production and sizing cost calculation. Defects in sizing.

**Fabric Designing:** Twill weaves and its derivatives, prominence of twill, satin and sateen weaves, etc.

**Weaving of certain commercial Fabrics:**

Denim, Poplin and Voile.

**Practicals:**

**1. Manual winder:**

- a. Study the passage of yarn, drive & winding speed calculations and adjustment of tensioners according to yarn count.
- b. Different types of **slub catchers** & their settings with respect to yarn count.
- c. Alignment of winding package, pressure adjustment
- d. Study the anti patterning device & study of cone holder.
- e. Use some yarns, calculate its count and adjust the tension required

**2. Pirn winding:**

- a. Yarn path in pirn winding & study of spindle drive, traverse.
- b. Setting of traverse length, bunch length, pirn diameter, chase angle etc.

**Skill developments:** Winding 4/5 bobbins into cheese/cone for practice including knotting

**3. Warping:**

- a. Study the passage of warp sheet through warping m/c.
- b. Study the driving arrangement of drum, creels, stop motion, brake system.

**4. Sizing: (During Mill Visit)**

- a. To study the passage of yarn on a sizing machine and the functions of various mechanisms of the sizing machine.
- b. Observe lappers, migration of ends, patches of size paste on sized warp sheet if any.
- c. Enlist the ingredients used in size paste & observe the method of size preparation. Collect some size paste from sow box and cooking beak and determine the solid content.
- d. Note down size recipes used for different sorts. Note down sort particulars and sizing cost/kg of yarn.
- e. Study the measuring & marking motion, tape length calculations.

5. Prepare at  
least 3 different samples on pilot loom and represent them on graph paper with drafting and peg plan.

- a) Plain weave
- b) Satin
- c) Broken twill/ zigzag twill
- d) Diamond weave

6. Working on  
CAD, plain weave structure, create stripes, checks with different coloured yarn, create dobby designs (4 samples) along with their draft, lifting plan on computer.

**Reference Books:**

- 1. Winding- **M.K. Talukdar.**
- 2. Winding (Silver jubilee monograph series) - **BTRA**
- 3. Yarn Winding (NCUTE Programme at IIT Delhi, March 1999) - **Edited by P.K. Banerjee**
- 4. Textile Math. (Vol. I to III) - **J.E. Booth.**
- 5. Sizing  
Materials, Methods, Machines- **Ajgaonkar, Talukdar and Wadekar.**
- 6. Grammar  
of Textile Designing - H. Nisbeth
- 7. Elementary  
Textile Designing - William Watson

**TT237: Textile Testing II  
(L2-T0-P2): 3 Credit**

---

**Evenness Testing:** Fundamentals of evenness testing, Principle and working of capacitance based evenness tester, Limit Irregularity, Index of irregularity and related calculations. (06)

**Fabric Testing:** Fabric thickness, Fabric tensile testing, Measurement of Tear strength, Bursting

strength, Abrasion resistance. Fabric handle, drape and stiffness, Crease recovery, Air permeability, Water permeability, Flammability. (12)

**Advanced Testing:** Details of AFIS equipment and applications, Classimat and Quantum system, CTT and its applications, Weavability tester, Kawabata (KES) and FAST systems- working and applications (12)

### **Practical:**

1. Determine Count Strength Product (CSP) of yarn using lea tester.
2. Determine single yarn strength, breaking elongation, initial modulus and work of rupture using Instron.
3. Determine unevenness of sliver.
4. Determine unevenness of roving.
5. Determine yarn unevenness and imperfections.
6. Determine yarn diameter using microscope.
7. Determine ply yarn twist.
8. Determine thickness, wt/unit area of given cloth and count of warp and weft.
9. Determine crimp % in warp and weft yarn.
10. Determine fabric strength & elongation by prolific tensile tester.

### **Reference Books:**

1. Testing and Quality Management (Vol. 1)- **Edited by V.K. Kothari**
2. Textile Fibres - **Gohl and Vilensky.**
3. Textile Fibres- **Murthy.**
4. Textile Fibres- **Shenai.**

## **TT238: TEXTILE WET PROCESSING I (L3-T0-P2): 4 Credit**

---

**Mechanical Fabric Preparation & Desizing:** Grey inspection, Shearing, Cropping, Singing, Chemistry and technology of different desizing viz. Enzymatic, acid and oxidative.

**Scouring and bleaching:** Chemistry and technology of scouring cotton cloth in both batch and continuous process, Chemistry and technology of hypochlorite, peroxide and chlorite bleaching, Preparation processes for synthetic and blended fabric in brief, Bleaching performances evaluation and norms for bleached cloth.

**Mercerisation:** Mercerisation, its chemistry and technology, Physical and chemical effect of mercerisation, Evaluations of mercerisation performances.

**Colour:** Concept of light and colour, Primary, secondary and tertiary colour, Hue, value, chroma, Munsell and CIE & CIE Lab colour measurement systems, Principles of spectrophotometer for colour measurement, Chemical constitution responsible for colour

**Dyeing:** Introduction to theory of dyeing, Classification of dyes based on method of application, Chemical constitution of different dyes, Auxochrome, chromophore and pigments. Mechanisms of dissolution, absorption and fixation of different dyes viz.

Direct, vat, solubilised vat, reactive, azoic, sulphur, acid and basic dyes on cellulosic and protein fibres, Effect of process and material parameters on dye performances, Various dyeing faults their causes and remedies

**Dyeing Machine:** Principle of working of different dyeing machine like jigger, yarn dyeing machine, padding mangle & continuous dyeing range, Latest technological features of different dyeing machines.

### **Practicals:**

1. Determination of amount of size in Textile Fabric/Yarn through enzymatic, acid & chlorite desizing
2. Cotton scouring & scouring loss determination.
3. Estimation of available Chlorine in hypochlorite bleaching liquor
4. Bleaching of cotton yarn/cloth with hypochlorite & peroxides.
5. Dyeing of Cotton with: a) Direct dyes, (b) Reactive Dyes, (c )Vat dyes, (d) Sulphur dyes
6. Dyeing of silk and wool with acid dyes

### **Reference Books:**

1. Dyeing and Chemical Technology of Textile Fibres - by E. R. Trotman, Sixth Edition
2. .Textile scouring & bleaching, by E.R. Trotman
3. Technology of Textile Processing - Vol.3, "Technology of Bleaching", by Dr. V. A. Shenai
4. Technology of Textile Processing - Vol.6, "Technology of Dyeing" by Dr. V. A. Shenai
5. Technology of Textile Processing - Vol.2,"Chemistry of dyes & Principle of dyeing" by Dr. V. A. Shenai.
6. Bleaching Mercerization & dyeing of cotton materials by R. S. Prayag

## **TT239: INPLANT TRAINING & SEMINAR (LO-T1-PO): 1 Credit**

Every student has to take an in plant training for **three weeks** at the end of **third semester** and has to submit a hard bound report to the department. **Viva-voce** based on this training report will be conducted in the **fourth semester**. **One seminar is to be presented in IV<sup>th</sup> semester**.

## **HU201: COMMUNICATION SKILL (LO-T1-PO): 1 Credit**

**Objective:** The main objective of this course is to prepare the engineering students for future career, further studies through development of listening, reading ,writing and speaking skills.

**Methodology:** The course may be dealt with in following ways: -

1. Discussion by tutor about theoretical nature of different aspects of Communication Skill.

2. Practice of it by the students as pronunciation, public speaking and organizing meeting etc.
3. Intervention by the tutor for corrective measures.
4. Understanding and grasping and then reporting by the students.

**Contents:** What is communication- need, importance, types, and objectives. Communication process & barriers. Principles of effective communication, Personality Development, SOWT Analysis, Stress Management, Building Positive Attitude, etc

1. Modes of communication.
2. Practice of effective communication through eye contact, voice modulation, audience awareness, presentation plan and verbal & non-verbal Communication.
3. Face to face conversation with body language.
4. Understanding guidelines for telephonic conversation, making and receiving calls, telephonic messages.
5. Interviews Skills for employment – Preparing -Group Interview, Lunch / Dinner Interview, Telephonic Interview, self and reporting for sample questions on educational background, co-curricular activities, extra curricular activities, experience, and general knowledge, miscellaneous.
6. Technical Guidelines for Communication  
- Hyphenated words, Use of Apostrophe, Abbreviations, Units , etc.
7. Meetings: understanding role and importance of procedure, chairmanship, participation, and physical arrangements, rules for successful meeting- experience sharing and reporting.
8. Group Discussions, Seminars and Conferences- Understanding different aspects- experience sharing and reporting.
9. Practice of public speaking with use of audio – Visual and Graphic aids, experience sharing and reporting.
10. Paragraph writing – Understanding principles, general hints writing and analyzing (practising paragraph writing on 3-5 topics)
11. Understanding the principles and practice of – office drafting, circular, notices, memos, and telex/telegraph/email messages. Application resumes, sales enquiry, reply order, complaint Reports, feasibility report, analytical report, progress report, project report, inspect of damage and losses etc.
12. Preparation of notices, agenda, minutes etc.
13. Grammar – Articles, Tenses, The Preposition, Choice of Words and Phrases, Words commonly Misspelt, Confusing words and Expressions, etc.
14. Phonetics – Pronunciation, Articulation of sounds structure of syllable stress, rhythm, connected speech, intonation, clarity and pitch.
15. Use of integrated skills of communication.

**Term work and Reporting:**

Term work will be in the form of Report containing minimum 10-12 exercises based on separate topics as mentioned in the syllabus.

The assessment will be made by the concerned teacher or an internal examiner appointed by the Principal of the College.

**Reference Books:**

1. Developing Communication Skill by Krishna Mohan and Meera Banerjee, McMillan

Publishers.

2. Communication Skill – B.V. Pathak, Nirali Prakashan.
3. Writing Correct English – Readers Digest Publication.
4. Communication Skills for Engineers - Sunita Mishra, C. Murlikrishna.
5. Professional Communication Skills-- S. Chand.
6. Developing Communication Skills-- Krishna Mohan, Meera Banerji.
7. Communicative Grammar and Composition-- Rajesh K. Lidiya.

**Note:** Exercises on Chapter No. 1, 2, 3 and 7 are desirable and one each on other topic is essential.