2.1 COMMUNICATING EFFECTIVELY IN ENGLISH
II SEMESTER SYLLABUS

L T P
3 - 2

RATIONALE

Interpersonal communication is a natural and necessary part of organizational life. Yet communicating effectively can be challenging because of our inherent nature to assume, overreact to and misperceive what actually is happening. Poor or lack of communication is often cited as the cause of conflict and poor teamwork. In today's team-oriented workplace, managing communication and developing strategies for creating shared meaning are crucial to achieving results and creating successful organizations. The goal of the ***Communicating Effectively in English*** course is to produce civic-minded, competent communicators. To that end, students must demonstrate oral as well as written communication proficiency. These include organizational and interpersonal communication, public address and performance.

II SEMESTER 48 hrs

1. LISTENING COMPREHENSION 4hrs

1.1 Locating Main Ideas in a Listening Excerpt
1.2 Note-taking

2. ORAL COMMUNICATION SKILLS 14 hrs

2.1 Offering-Responding to Offers
2.2 Requesting-Responding to Requests
2.3 Congratulating
2.4 Expressing Sympathy and Condolences
2.5 Expressing Disappointments
2.6 Asking Questions-Polite Responses
2.7 Apologizing, Forgiving
2.8 Complaining
2.9 Persuading
2.10 Warning
2.11 Asking for and Giving Information
2.12 Giving Instructions
2.13 Getting and Giving Permission
2.14 Asking For and Giving Opinions

3. GRAMMAR AND USAGE **10hrs**

3.1 Prepositions
3.2 Pronouns
3.3 Determiners
3.4 Conjunctions
3.5 Question and Question Tag
3.6 Tenses (Simple Present, Simple Past)

*One chapter revising the topics discussed during the first semester. (Punctuation, Articles, Framing questions, Verbs, Word formation)

4. WRITING SKILLS **10hrs**

4.1 Writing Notice
4.2 Writing Circular
4.3 Writing a Memo
4.4 Agenda for a Meeting
4.5 Minutes of the Meeting
4.6 Telephonic Messages

* Writing a paragraph will be a continuous exercise through out the session. (Writing will be based on verbal stimuli, tables and graphs.)

5. READING SKILLS **10hrs**

5.1 Vocabulary Enhancement
5.2 Techniques of reading: Skimming, Scanning, Intensive and Extensive Reading

NOTE: The Reading Skills of the learners (along with vocabulary enhancement) will be through reading thematic articles/essays and/or stories.

CONTENTS

Reading Skills

Writing Skills

Grammar and Usage

2.2 DRAWING AND RENDERING - II

L T P
- - 4

RATIONALE

Diploma holders of textile design are required to draw various forms of objects from their surroundings and nature from design point of view e.g flowers, leaves, fruits, plants, monuments etc. The translation of ideas into practice without the use of this graphic language is really beyond imagination. The students are supposed to go for outdoor sketching, also to the museums, gardens and monuments so that they can use various shapes, colours and textures in their designs.

DETAILED CONTENTS

Related theory for Practical Exercises	Practical Exercises
1. Understanding of different shapes of objects, opaque and transparent objects, glazed and rough surface; objects and use of different mediums	1.1 Draw different shaped objects like round (pot, kettle, ball etc), square (match box, duster, big and small boxes) and make them by black pen and ink
2. Study of Drapery	2.1 Different folds of drapery may be studied with any back ground by black pen and ink
3. Stylizing the different objects	3.1 Stylization of the objects studied in theory and then forming a composition

Note: 1. Students should be taken out for field visits, museums, exhibitions, market, etc for clarifying the concepts and principles of this course as per requirement.

2. There will be only a practical paper in this subject. The knowledge attained by students regarding related theory for practical exercises will be evaluated in the form of viva-voce during practical examinations.

RECOMMENDED BOOKS

1. How to draw and paint by A Walter foster; published by E.D. Galgotia and sons.

2. Flowers and still life by A Walter foster; published by E.D. Galgotia and sons.

3. How to draw and paint textures of animals by A Walter foster; published by E.D. Galgotia and sons.

2.3 BASIC DESIGN - II

L T P
- - 4

RATIONALE

Diploma holder of Textile Design are supposed to know the concepts of construction of designs in various styles by using various techniques according to the suitability of various kinds of fabrics on paper with colours. Students are given understanding of all elements and concepts of design through various exercises. They are also taught use of different tools and art-materials

DETAILED CONTENTS

Related theory for Practical Exercises	**Practical Exercises**
1. Understanding of collage work and its use in making designs	1.1 Students will make various motifs with coloured papers/glazed papers or pictures on given suggested themes: a) Composition of flowers b) Composition of animals c) Composition of birds
2. Understanding of various styles of designs: - Natural (Realistic) - Conventional - Geometrical - Geometrical - Abstract - Traditional - Folk - Symbolic	2.1 Students will make motifs based on each style 2.2 Style on any theme by using postal colours as a basic medium 2.3 With the reference of above motifs samples of following arrangement on quarter size drawing sheet will be prepared by students 1) All over arrangement 2) Border arrangement 3) Centre arrangement 4) Corner arrangement
3. Change of one style of design to another	3.1 Students will practice to change designs from one style to another

Related theory for Practical Exercises	Practical Exercises
4. Construction and placement of designs on various basis - Drop designs (Unit repeating designs) - Half drop designs - Drop reverse designs - Sateen based arranged designs (regular and irregular sateen arrangements)	4.1 Students will practice to make designs on various basis for various types of arrangements 4.2 Students will make 2 – 4 samples of designs on quarter sized drawing sheet on various arrangements with poster colours as a medium
5. Stripe and check designs	5.1 Students will make motifs of stripe and check designs suitable for printed and woven fabrics by using poster colours/sketch pens (inks) as medium
6. Enlargement and Reduction of Design	6.1 Students will draw motifs of various designs in enlarged and reduced sizes

Note: Students should be taken for field visits, museums, exhibitions, market, etc for clarifying the concepts and principles of this course as per requirement. There will be only practical paper in this subject. The knowledge attained by students regarding related theory for practical exercises will be evaluated in the form of viva-voce during practical examinations

RECOMMENDED BOOKS

1. The Encyclopaedia of Patterns and Motifs by Dorothy Bosomworth; Studio London

2. Designer's Guide to Colour 3 by Jeanne Alen; Chronicle Books, San Francisco

3. Fabric Painting by Jill Kennedy and Jane Varsall; BT Batsford Ltd., London

4. Designer's Guide to Japanese Patterns by Jeanne Allen; Chronicle Books, San Francisco

5. Handwoven Fabrics of India by Jasleen Dhamija and Jyotindra Jain; Mapin Publishing Pvt. Ltd., Ahmedabad

6. Impression - A Classic Collection of Textile Design by K Prakash; The Design
Point, B-7, Shiv Krupa Apartments, Old Nagaradas Road, Andheri (E) Bombay
400 069 (India)

7. Textile Designs- Idea and Applications by Joel Sokoelov; PBC International, Inc., New York

8. History of Textile Design by VA Shenai; Sevak Publications, Bombay 400 031

9. Fabric Art Heritage of India by Sukla Dass; Abhinav Publications

10. Fabric Painting Made Easy by Nancy Ward; Craft Kaleidoscope, Chilton Book
Company, Radnor, Pennsylvania

11. Watson's Textile Design and Colour by Z Grosicki; Universal Publishing Corporation, Bombay (India)

12. Textile Designs- 200 years of Patterns for Printed Fabrics Arranged by Motifs, Colours, Period and Design by Susan Maller and Joost Elffers; Thames and Hudson

13. English and American Textiles from 1790 to the Present by Mary Schoeser and
Celia Rufey; Thames and Hudson

2.4 COLOUR AND TEXTURE - II

L	T	P
-	-	4

RATIONALE

Diploma holders of Textile Design should know the basics of colour theory, to enhance the beauty of design. Colour plays a vital role in design. With various mediums like coloured inks, crayon, water colours and poster colours etc, they are taught to create colour mixing, colour combinations and texture, creating various tonal effects

DETAILED CONTENTS

PRACTICAL EXERCISES

1. Colour Terminology (Colour Measurements): Express the following words in colour with illustration and notes:

   a) Hue
   b) Value
   c) Intensity

2. Colour Schemes:

   a) Contrast Colour Scheme: Introduction to various colour harmonies

   b) Achromatic Colour Scheme: Arrange different geometrical shapes in 12x12" and paint it with achromatic colour

   c) Prepare Monochromatic and Polychromatic colour scheme

   d) Analogous colour scheme: Transparent and opaque colours; positive and negative

   e) Complementary Colour Scheme: Make designs showing different sets of complementary colours

   f) Split Complementary: Double split complementary g) Warm and cool colour

   h) High key, middle key and low key

3. Texture: Texture file with 25 different textures: Use of texture on cloth:

   a) Marble

b) Spray
c) Rubber
d) Vegetable
e) Brushes
f) Coin
g) Smoke texture

4 Make a colour chart showing as many as colours you can at different values and intensity

5. Instrumental colour measurement (may be demonstrated in institution/industry)

Note: Mixing and developing of different colour shades may be shown on computer so that the students are able to appreciate the importance of the subject

RECOMMENDED BOOKS

1. Computer Colour-10,000 computer - Generated Process colours by Michael and Pat Rogondino; Angus and Robertson Publishers (Practical reference of colours Processed by Mixing)

2. Colour in Theory and Practice by HD Murray; Chapman and Hall Ltd., 37 Essex Street, WC 2, London 1952

3. An Introduction to Colour by Ralph M Evans; London Chapman and Hall Ltd.

4. Designer's Guide to Colour 1, 2, 3, 4, 5, 6 by Ikuyashi Shibukawa and Yum Takahashi; Chronicle Books, San Franscisco

5. Colour Harmony- A guide to Creative Colour Combinations by Hideaki Chijiiwa, Professor Musashino College of Art; India Book Distributors

6. Variety Fashion for Freedom by SA Huisain; Trends Today, Bombay, India

7. The 4 - Colour Person by Dr Max Luscher; Simon and Schuster

8. The Colour Handbook how to Use Colour in Commerce and Industry by EP Danger; Gower Publishing Company, Old Post Road, Brookfield Vermont 05036, USA

2.5 INTRODUCTION TO TEXTILE PROCESSES - II

L	T	P
3	-	4

RATIONALE

The students of textile design are supposed to have introductory knowledge and skill related to various fibres, yarns and fabrics. Thus in this subject students learn different fibres, yarns and fabrics and their manufacturing techniques.

DETAILED CONTENTS

Theory	Practical Exercises
1. Introduction to mixing and blending techniques (3 hrs)	
2. Principles of blow room, carding, drawing/gilling, speed frame, ring frame and doubling (7 hrs)	2.1 Understanding different spinning processes by textile mill visit
3. Process flow of cotton, woolen, and worsted system of yarn manufacture (4 hrs)	3.1 Estimation of fibre diameter and yarn diameter by projection microscope 3.2 Understanding different processes
4. Insertion of twist, S and Z twist, type of package in spinning and doubling	4.1 Inspection of yarns for S and Z twist, hard twisted and soft twisted
5. Knowledge of standard yarns, bulked yarn, core yarn, high tenacity yarn, lustre yarn, tyre cord yarn, carpet yarn, stretch yarn, twist-of-twist yarn, spiral yarn, grandrella yarn, hosiery	5.1 Identification of different types of yarns studied in theory
6. Introduction to yarn packages (2 hrs)	
7. Process flow of fabric manufacturing (7 hrs)	7.1 Understanding different processes of weaving through textile mill
8. Basic principles of weft and warp knitting and use of knitted fabrics (6 hrs)	8.1 Understanding process of knitting through textile mill visit

Theory	Practical Exercises
9. Process flow of wet processing (6 hrs)	13.1 Understanding of dyeing and printing

Note: The student may be exposed to different types of textile manufacturing processes through textile mill visit so that they are able to understand the subject properly.

RECOMMENDED BOOKS

1. Textile Fibre by Ghol and Valanslk

2. Yarn to Fabric by Peter Schwarz

3. Fibre to Fabric by BP Corbman

4. Textile Fibres and their processings by KP Hess

5. Elementary Textile By Parul Bhatnagar; Abhishek Publisher, Chandigarh

2.6 STRUCTURAL FABRIC DESIGN – II

RATIONALE

The students of textile design are supposed to have knowledge and skill regarding various weaves and their construction. Hence, in this subject, students will learn different weaves, their method of employment to acquire competency for production of woven designs for different end uses.

DETAILED CONTENTS
THEORY

1. Characteristics and uses of satin and sateen weaves, construction of regular and irregular satin and sateen (6 hrs

2. Construction of bed ford cord and wadded bed ford (4 hrs)

3. Backed fabrics, warp and weft backed fabrics, wadded warp and weft backed fabrics their beaming and drafting procedure (6 hrs)

4. Welts and piques, methods of embellishing pique fabrics their structure, plain pique backed pique, fast backed welts and waved pique (Mill visit) (8 hrs)

5. Diamond weaves and their construction (4 hrs)

6. Simple honey comb, brighton honey comb, hucbaback, sponge and similar weaves (5 hrs)

7. Mock leno weave and distorted thread effects (4 hrs)

8. Extra warp and weft, principles of figuring with extra warp and weft one and one i.e. pick and pick wefting, two and two wefting, methods of disposing of extra threads on the back of the fabric. Spot figures with extra warp and extra weft arranged in a particular order (10 hrs

PRACTICAL EXERCISES

Following weaves to be constructed on Graph Paper

1. Construction of pointed and diagonal weave, satin and sateen weaves – regular and irregular

2. Construction of Honey comb weave and brighton honey comb

3. Construction of Hucka back weave
4. Construction of Mock leno weave as on following samples

Tray Cover - Tea cozy

Table Mat

Theme: Motif design with binding weave
Warp count 2/24 s
Weft Yarn Wool fancy or any other suitable material

Cushions

Weave in combination with plain
weave Placement square on rectangle
blocks warp count 2/10 s or 2/20s
Weft yarn Fancy material

5. Drafting and denting of warp for weaves studied in theory

6. Study of effect of structure of cloth by changing denting plan

7. Study of effect of change in structure by varying lifting plan

Note: Concept of different weaves should be made clear with the help of samples and bobbin samples so that the students are able to identify different weaves in the fabric samples

RECOMMENDED BOOKS

1. Grammer of Textile Design – Nisbet

2. Structural Fabric Design by – Kilby

3. Woven Structures and Design – Doris Goerner; British Textile Technology Group WIRA House, Leeds (UK)

4. Fibre to Fabric by Ghosh

5. Watson's Advance Textile Design

6. Watson's Textile Design and Colour

2.7 ART APPRECIATION IN INDIAN TRADITIONAL TEXTILE DESIGN - II

L	T	P
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RATIONALE

Diploma holders of textile design are supposed to know the historical backgrounds of Indian traditional textiles i.e. woven, printed and embroidered and their development of design, fabric uses and technical details. In practical, students learn to prepare replicas, for which they should visit art galleries and museums

DETAILED CONTENTS

Theory	Practical Exercises
1. Study of printed and painted textiles with reference to: - Historical significance - Printing Techniques - Styles, colour and dyes and motifs - Centres of production a) Kalamkari b) Gujrat and Rajasthan (Block Printing) c) Madhubani d) Indian Miniatures e) Saree of India (22 hrs)	1.1 Replication of designs (2 to 4 designs each) 1.2 Assignments to students on designs 1.3 Presentation of assignments 1.4 To practically make a wall panel with one or two styles
2. Study of resist dyed textiles with reference to : - Historical signicance - Dyeing techniques - Styles, colour and Motifs - Centres of Production a) Patola, Ikat and Pochampalli b) Bandhani of Rajasthan and Gujrat c) Saree (20 hrs)	2.1 Replication of designs (2 to 4 designs each) 2.2 Assignments to students on designs 2.3 Presentation of assignments
3. Study of carpets and floor coverings (6 hrs)	3.1 Replication of designs (2 to 4 designs each) 3.2 Assignment to students on design

Note: Students should be taken for field visits to various production centres to show the samples of the above mentioned textiles (embroidered, woven, printed and dyed) They may also be taken for field visits to various places like art galleries/ museums/religious places

Practically execute any one of the traditional designs in the contemporary form and prepare a file with replica or samples of the given topics

RECOMMENDED BOOKS

1. Folk Embroidery of Himachal Pradesh by Subhashini Aryan
2. Ikat Textile of India by Chetna Desai
3. Indian Painted Textiles by Kamla Dev Chattopadya
4. Carpets of India by Marq
5. Fabric Art heritage of India by Sukla Das
6. Hand Woven Fabric of India by Jasleen Dhamija
7. Indian Sari by Kamla Dev Chattapodya
8. Tie Dyed Textile of India by Veronica Murphy
9. Hand Woven Fabrics of India by Jasleen Dhamija
10. Traditional Indian Textiles by John Gillow
11. Textile Art of India by Kyoto Shoin
12. Hand Painting Textile For the Home by Kaszz Ball and Valcrie
13. Tie Dyed Textiles of India by Murphyd Crill
14. Masterpieces of Indian Textile by Rustam J Mehta
15. Kashmir Shawls by All India Handicrafts Board
16. Everything you ever wanted to know about Fabric Painting by Jill Kennedy and Jane Vourell
17. Saries of India – RTZ and Singh
18. Saries of Madhya Pradesh

19. Embroidered Textiles of India Calico Masam of India

20. Painted Textiles of India Calico Masam of India

21. Printed Textiles of India Calico Masam of India

22. Woven Textile of India Calico Masam of India

23. Costumes and Textiles of India by Parul Bhatnagar; Abhishek Publisher, Chandigarh

24. Fabric Painting by Jill Kennedy Verral

ECOLOGY AND ENVIRONMENTAL AWARENESS CAMP

A diploma holder must have knowledge of different types of pollution caused due to industries and constructional activities so that he may help in balancing the eco system and controlling pollution by pollution control measures. He should also be aware of environmental laws related to the control of pollution.

This is to be organized at a stretch for 3 to 4 days. Lectures will be delivered on following broad topics. There will be no examination for this subject.

1. Basics of ecology, eco system and sustainable development

2. Conservation of land reforms, preservation of species, prevention of advancement of deserts and lowering of water table

3. Sources of pollution - natural and man made, their effects on living and non-living organisms

4. Pollution of water - causes, effects of domestic wastes and industrial effluent on living and non-living organisms

5. Pollution of air-causes and effects of man, animal, vegetation and non-living organisms

6. Sources of noise pollution and its effects

7. Solid waste management; classification of refuse material, types, sources and properties of solid wastes, abatement methods

8. Mining, blasting, deforestation and their effects

9. Legislation to control environment

10. Environmental Impact Assessment (EIA), Elements for preparing EIA statements

11. Current issues in environmental pollution and its control

12. Role of non-conventional sources of energy in environmental protection

2.8 GENERAL WORKSHOP PRACTICE – I & II

RATIONAL

Manual abilities to handle engineering materials with hand tools need to be developed in the students. They will be using different types of tools/equipment in different shops for fabrication purposes. Besides developing the necessary skills, the students will appreciate the importance of quality and safety measures.

DETAILED CONTENTS

Note: 1. The students are supposed to come in proper workshop dress prescribed by the institute. Wearing shoes in the workshop(s) is compulsory. Importance of safety and cleanliness, safety measures and upkeep of tools, equipment and environment in each of the following shops should be explained and practiced. The students should prepare sketches of various tools/jobs in their practical Notebook.

2. The shops to be offered in I and II semester may be decided at polytechnic level

3. The students should be taken to various shops (not included in the curriculum) in the polytechnic in batches and should be given knowledge of the various machines/equipment. Such as machine shop, foundry shop, sheet metal shop, etc.

4. Students of Diploma in Chemical Engineering will undergo Shops 1 to 6 only

Following seven shops are being proposed:

1. **Carpentry shop**
2. **Fitting and plumbing shop**
3. **Welding shop**
4. **Paint shop**
5. **Forging and sheet metal shop**
6. **Electric shop**
7. **Electronics Shop**

1. Carpentry Shop

1.1 Introduction to various types of wood, carpentry tools - their identification with sketches. Different types of wood joints.

1.2 Simple operations viz. hand sawing, marking, planning

1.3 Introduction and sharpening of wood working tools and practice of proper adjustment of tools

1.4 Demonstration and use of wood working machines i.e. band saw, circular saw, rip saw, bow saw and trammels. Universal wood working machine and wood turning lathe

1.5 Making of various joints (Also draw the sketches of various wooden joints in the Practical Note Book)

a) Cross lap joint
b) T-lap joint
c) Corner lap joint
d) Mortise and tenon
joint e) Dovetail joint
f) Prepare a file handle or any utility items by wood turning lathe

2. Fitting and Plumbing Shop

2.1. Introduction to fitting shop, common materials used in fitting shop, description and demonstration of various types of work-holding devices and surface plate, V-block

2.2 Demonstration and use of simple operation of hack-sawing, demonstration of various types of blades and their uses

2.3 Demonstrate and use of all important fitting shop tools with the help of neat sketches (files, punch, hammer, scraper, taps and dyes etc.)

2.4 Introduction of chipping, demonstration on chipping and its applications.

Demonstration and function of chipping tools.

2.5 Description, demonstration and practice of simple operation of hack saw, straight and angular cutting.

2.6 Demonstrations, description and use of various types of blades - their uses and method of fitting the blade.

2.7 Introduction and use of measuring tools used in fitting shop like: Try square, Steel rule, Measuring Tape, Outside micrometer, Vernier Caliper and Vernier Height Gauge

2.8 Description, demonstration and practice of thread cutting using taps and dies

2.9 Plumbing: Descriptions and drawing of various plumbing shop tools, Safety precautions. Introduction and demonstration of pipe dies, Pipe holding devices, Demonstration and practice of Pipe Fittings such as Sockets, Elbow, Tee, Reducer, Nipple, Union coupling, plug, Bend, Float valves and Taps

Job: Cutting and filing practice on a square of 45 X 45 mm^2 from MS flat

Job: Angular cutting practice of 45^0 (on the above job)

Job: Preparation of stud (to cut external threads) with the help of dies (mm or BSW)

Job: Drilling, counter drilling and internal thread cutting with Taps

Job: H-Fitting in Mild steel (ms) square

Job: Pipe cutting practice and thread cutting on GI Pipe with pipe dies

3. Welding Shop

3.1 Introduction to welding, type of welding, common materials that can be welded, introduction to gas welding equipment, types of flame, adjustment of flame, applications of gas welding. Welding tools and safety precautions

3.2 Introduction to electric arc welding (AC and DC), practice in setting current and voltage for striking proper arc, precautions while using electric arc welding. Applications of arc welding. Introduction to polarity and their use

3.3 Introduction to brazing process, filler material and fluxes; applications of brazing. Use of solder. Introduction of soldering materials

3.4 Demonstrate and use of the different tools used in the welding shop with sketches. Hand shield, helmet, clipping hammer, gloves, welding lead, connectors, apron, goggles etc.

3.5 Demonstration of welding defects and Various types of joints and end preparation

Job: Preparation of cap joint by arc welding

Job: Preparation of Tee joint by arc welding

Job: Preparation of single V or double V butt joint by using Electric arc welding

Job: Brazing Practice. Use of Speltor (on MS sheet pieces) Job: Gas welding practice on worn-out and broken parts

4. Paint Shop

Introduction of painting shop and necessity. Different types of paints. Introduction of powder coating plant and their uses.

Job: Preparation of surface before painting such as cleaning, sanding, putty, procedure and application of primer coat, and painting steel item.
Job: Painting practice by brush on MS sheet
Job: Practice of dip painting
Job: Practice of lettering: Name plates / Sign board
Job: Polishing and painting on wooden and metallic surfaces
Job: Practical demonstration of powder coating

5. Forging and sheet metal shop

Introduction to forging, forging tools, tongs, blowers/pressure blowers, hammers, chisels, punch, anvil, swag-block etc. Forging operations.

5.1 Forge a L hook or Ring from MS rod 6 mm φ

5.2 Forge a chisel and give an idea of hardening and tempering

5.3 Lap joint with forge welding

5.4 High Strength Steel (HSS) tools – forging of Lathe shaper tools like side-tools and V-shape tools

5.5 Making sheet metal joints

5.6 Making sheet metal trey or a funnel or a computer chassis

5.7 Preparation of sheet metal jobs involving rolling, shearing, creasing, bending and cornering

5.8 Prepare a lap riveting joint of sheet metal pieces

6. Electric Shop

6.1 Demonstration of tools commonly used in Electric Shop

6.2 Safety precautions , electric shock treatment

6.3 Demonstration of Common Electric material like: wires, fuses, ceiling roses, battens, cleats and allied items

6.4 Demonstration of Voltmeter, Ammeter, Multimeter and Energy meter

Job: Wiring practice in batten wiring, plastic casing-capping and conduit
Job: Control of one lamp by one switch Job: Control of one lamp by two switches Job: Control of one bell by one switch Job: Assemble a Tube light
Job: Dismantle, study, find out fault, repair the fault, assemble and test domestic appliances like electric iron, electric mixer, ceiling and table fan, tube-light, water heater (geyser) and desert cooler
Job: Laying out of complete wiring of a house (Single-phase and Three- phase)

7. Electronics Shop

7.1 Identification, familiarization, demonstration and use of the following electronic instruments:

a) Multi-meter digital
b) Single beam simple CRO , function of every knob on the front panel
c) Power supply , fixed voltage and variable voltage, single output as well as dual output.

7.2 Identification , familiarization and uses of commonly used tools; active and passive components; colour code and types of resistor and potentiometers

7.3 Cut, strip, join and insulate two lengths of wires/cables (repeat with different types of cables/ wires)

7.4 Demonstrate and practice the skill to remove components/wiresby unsoldering

7.5 Cut, bend, tin component, leads, inserts. Solder components e.g. resistor, capacitor, diodes, transistors on a PCB

7.6 Wiring of a small circuit on a PCB/tag strip involving laying, sleeving and use of identifier tags

7.7 Demonstrate the joining (or connecting) methods/mounting and dismantling method, as well as uses of the items mentioned below:

a) Various types of plugs, sockets, connectors suitable for general- purpose audio video use. Some of such connectors e.g. 2 and 3 pin mains plug and sockets, Banana plugs, sockets and

similar male and female connectors and terminal strips.

b) Various types of switches such as: normal/miniature toggle, slide, push button piano key, rotary, SPST, SPDT, DPST, DPDT, band selector, multi-way Master Mains Switch.

7.8 Exposure to modern soldering and de-soldering processes (Field visits)

7.9 De-solder pump, remove and clean all the components and wires from a given equipment, a PCB or a tag strip.