

## 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.**

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**Grammar and Usage**

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## 2.2 PERSONNEL MANAGEMENT

### RATIONALE

The objective of this course is to acquaint the students with the principles of personnel Management. In modern era everyone has to know the cost of managing people, working in team spirit and in motivated environment. This subject deals with manpower planning recruitment and selection; induction and case studies to give insight of the subject matter.

### DETAILED CONTENTS

1. Concept, importance and scope of personnel management, evolution of personnel management (10 hrs)
2. Operative function of personnel management, status and role of personnel manager, organization of the personnel department (12 hrs)
3. Manpower Planning: concept, need, advantages, limitations and its process (12 hrs)
4. Recruitment and Selection: Concept and objective of recruitment and selection of manpower, process of recruitment and selection (12 hrs)
5. Various terms; Induction, placement, promotion and transfers (6 hrs)
6. MBO Keys (10 hrs)
  - f* Concept, characteristics of objectives
  - f* Guidelines for setting the objectives
  - f* Management by objectives (MBO) and KRAs

### RECOMMENDED BOOKS

1. Personnel Management and Industrial Relation by Dr. NK Sahni and Shri Yogesh Kumar, Kalyani Publication, Ludhiana
2. Personnel Management and Industrial Relation by Dale
3. Personnel Management by CB Memoria; Himalaya Publications, Delhi
4. Management of Personnel in India by NN Chatterjee
5. Managing People Effectively, Managerial Experiences (100 case Studies) by Dr ML Bhasin; Global Business Press
6. Cases in Human Resource Development by Sanjay Srivastava and others Amexcel Publishing Privated Ltd. (AMA)

**TUTORIAL ASSIGNMENTS**

1. Scope of personnel management
2. Responsibility of personnel manager in development of the organisation
3. Significance of training in an business organisation
4. Selection vs. recruitment
5. Manpower planning at different levels in organisation

## 2.3 COMPUTER FUNDAMENTALS AND INFORMATION TECHNOLOGY

	L	T	P
Hrs/week	2	-	4

### RATIONALE

Information technology has great influence on all aspects of our life. All our work places and the living environment are being computerized. In order to prepare certificate holders to work in these environments, it is essential that they are exposed to various aspects of information technology such as understanding the concept of information technology and its scope; operating a computer; use of various tools of MS office; Desk top Publishing and using internet etc. form the broad competency profile of diploma holders. This exposure will enable the students to enter the world with confidence, live in these environments in a harmonious way and contribute to the productivity.

**Note:** 1. *Teaching of theory should be dovetailed with practical work, There will be a theory examination also*

2. *The following topics may be taught in the laboratory along with the practical exercises.*

### DETAILED CONTENTS

1. Information Technology – its concept and scope
2. Computers for information storage, information seeking information processing and information transmission
3. Elements of computer system, computer hardware and software; data – numeric data, alpha numeric data; program, processing
4. Computer organization, block diagram of a computer, CPU, memory
5. Input devices; keyboard, mouse etc; output devices; VDU and Printer, Scanner, Plotter
6. Electrical requirements, inter-connections between units, connectors and cables
7. Secondary storage; magnetic disks – tracks and sectors, optical disk (CD and DVD Memory), primary and secondary memory: RAM, ROM, PROM etc., Capacity; device controllers, serial port, parallel port, system bus

8. Service like file opening and closing; memory management; device management and input – output (I/O) management with respect of windows
9. Installation concept and precautions to be observed while installing the system and software
10. Introduction about Operating Systems such as MS-DOS and Windows
11. Special features, various applications of MS Word and MS-Excel
12. About the internet – server types, connectivity (TCP/IP, shell); applications of internet like:  
e-mail and browsing
13. Various Browsers like WWW (World wide web); hyperlinks; HTTP (Hyper Text Transfer Protocol); FTP (File Transfer Protocol)
14. Local Area Networks and Data-nets
  - Basics of Networking – LAN, WAN, Topologies
  - Types of LAN
  - Network components
  - Network topology
  - Clients / server architecture
15. E-Commerce: Overview of e-commerce, Security issues in e-commerce
16. Mail and Message System: e-mail ,Document and picture transmission, Voice mail, Teleconferencing, Trouble shooting in e-mail

### **LIST OF PRACTICALS**

1. Given a PC, name its various components and list their functions
2. Identification of various parts of a computer and peripherals
3. Practice in installing a computer system by giving connection and loading the system software and application software
4. Installation of DOS and simple exercises on TYPE, REN, DEL, CD, MD, COPY, TREE, BACKUP commands
5. Exercises on entering text and data (Typing Practice)
6. Installation of Windows 98, 2000 etc.
  - (1) Features of Windows as an operating system
    - Start
    - Shutdown and restore
    - Creating and operating on the icons
    - Opening, closing and sizing the windows
    - Using elementary job commands like – creating, saving, modifying, renaming, finding and deleting a file
    - Creating and operating on a folder
    - Changing setting like, date, time, color (back ground and fore ground)



- Using short cuts
- Using on-line help

## 7. MS-Word

- File Management:  
Opening, creating and saving a document, locating files, copying contents in some different file(s), protecting files, Giving password protection for a file
- Page Set up:  
Setting margins, tab setting, ruler, indenting
- Editing a document:  
Entering text, Cut, copy, paste using tool- bars
- Formatting a document:  
Using different fonts, changing font size and colour, changing the appearance through bold/ italic/ underlined, highlighting a text, changing case, using subscript and superscript, using different underline methods
- Aligning of text in a document, justification of document ,Inserting bullets and numbering
- Formatting paragraph, inserting page breaks and column breaks
- Use of headers, footers: Inserting footnote, end note, use of comments
- Inserting date, time, special symbols, importing graphic images, drawing tools
- Tables and Borders:  
Creating a table, formatting cells, use of different border styles, shading in tables, merging of cells, partition of cells, inserting and deleting a row in a table
- Print preview, zoom, page set up, printing options
- Using Find, Replace options
- Using Tools like:  
  
Spell check, help, use of macros, mail merge, thesaurus word content and statistics, printing envelopes and lables
- Using shapes and drawing toolbar,
- Working with more than one window in MS Word,
- How to change the version of the document from one window OS to another

- Conversion between different text editors, software and MS word

## 8. MS-Excel

Starting excel, open worksheet, enter, edit, data, formulas to calculate values, format data, create chart, printing chart, save worksheet, switching from another spread sheet

### Menu

commands:

create, format charts, organise, manage data, solving problem by analyzing data, exchange with other applications. Programming with MS-Excel, getting information while working

### Work

books:

Managing workbooks (create, open, close, save), working in work books, selecting the cells, choosing commands, data entry techniques, formula creation and links, controlling calculations, working with arrays

- Editing a worksheet, copying, moving cells, pasting, inserting, deletion cells, rows, columns, find and replace text, numbers of cells, formatting worksheet

Creating a chart:

working with chart types, changing data in chart, formatting a chart, use chart to analyze data

- Using a list to organize data, sorting and filtering data in list
- Retrieve data with MS – query: Create a pivot table, customising a pivot table. Statistical analysis of data

Customise MS-Excel:

How to change view of worksheet, outlining a worksheet, customise workspace, using templates to create default workbooks, protecting work book

- Exchange data with other application: linking and embedding, embedding objects, linking to other applications, import, export document.

9. Desk Top Publishing (DTP)
  - 9.1 Introduction to DTP system, various available software like Pagemaker, Corel Draw
  - 9.2 Capabilities of DTP system
  - 9.3 Setting up news letters
  - 9.4 Editing news letters
  - 9.5 Batting tags and text attributes.
  - 9.6 Preparation of catalogues, visiting cards, certificates, etc.
  - 9.7 Preparation of bills and vouchers
- 9.8 Printing.
10. Internet and its Applications
  - a) Log-in to internet
  - b) Navigation for seeking information on internet
  - c) Down loading information from internet
  - d) Sending and receiving e-mail
    - Creating a message
    - Creating an address book
    - Attaching a file with e-mail message
    - Receiving a message
    - Deleting a message
  - e) E- Mail
    - Create e-mail account with different user mails.
    - How to operate voice-mail?

### RECOMMENDED BOOKS

1. Fundamentals of Computer by V Rajaraman; Prentice Hall of India Pvt. Ltd., New Delhi
2. Computers Today by SK Basandara, Galgotia Publication Pvt Ltd. Daryaganj, New Delhi
3. MS-Office 2000 for Everyone by Sanjay Saxena; Vikas Publishing House Pvt. Ltd., New Delhi
4. Internet for Every One by Alexis Leon and Mathews Leon; Vikas Publishing House Pvt. Ltd., Jungpura, New Delhi
5. A First Course in Computer by Sanjay Saxena; Vikas Publishing House Pvt. Ltd., Jungpura, New Delhi
6. Mastering Windows 98, BPB Publication, New Delhi
7. Mastering Word 6.0 for Windows BPB Publication, New Delhi
8. Teach Yourself MS Excel 97 in 24 hours by Peterson
9. Mastering DOS 6.0 by Robbins Judd
10. Computer Fundamentals by PK Sinha; BPB Publication, New Delhi

11. Fundamentals of Information Technology by Leon and Leon; Vikas Publishing House Pvt.
12. Ltd., Jangpura, New Delhi
  
13. Fundamentals of Information Technology by Sanjay Saxena, Vikas Publishing House Pvt.
14. Ltd., Jangpura, New Delhi

## 2.4 BUSINESS MATHEMATICS AND STATISTICS

	L T P
<b>RATIONALE</b>	Hrs/week 4 2 -

The objective of this course is to acquire the students with simple quantitative techniques that are helpful in decision-making and problem-solving. Emphasis will be given on application rather than on theoretical derivation so that the student is able to develop analytical mind to take instant decisions later on with experience

### DETAILED CONTENTS

1. Equations and Business Applications (12 hrs)  
1st degree equations, simultaneous equations, quadratic equations, exponential equation
2. Measure of Central Tendency (10 hrs)  
Mean, mode, median, geometric mean, harmonic mean
3. Measure of Dispersion (8 hrs)  
Quartile deviation, average deviation and standard deviation – relative measures of dispersion
4. Types of Sampling (10 hrs)  
Probability Vs non-probability sampling, simple random sampling, stratified random sampling
5. Probability Theory (12 hrs)  
Bivariate correlation and regression with special emphasis on market variables; correlation and regression of bivariate grouped data
6. Time Series Analysis (12 hrs)  
Components time series – trend, analysis using moving averages and regression analysis, concept of seasonal, cyclical and irregular factors, statistical elimination of cyclical factor

### RECOMMENDED BOOKS

1. Statistical Methods by SP Gupta, Sultan Chand and Sons, New Delhi
2. Elementary Mathematics of Class 10+2, CBSE, New Delhi
3. Business Statistics by DP Jain; Sultan Chand and Sons, New Delhi

**TUTORIAL ASSIGNMENTS**

The teacher must give at least 5 problems of each topic as home assignment to be done independently by the student and side wise evaluation of the same must take place regularly.

## 2.5 ORGANIZATIONAL BEHAVIOUR - II

### RATIONALE

After getting introduction in organizational behaviour – I, the students have to practically get the work done from people around them so it is necessary for them to understand group dynamic and leadership qualities. The student will learn how to work in stress and face difficult situations.

### DETAILED CONTENTS

1. Fundamentals of Organization Behaviour (10 hrs) Working with people, understanding organizational behaviour, historical development of organizational behaviour, Hawthorn studies, Ahmedabad experiment
2. Group Dynamics (10 hrs) Nature, types and functions of formal and informal groups, management of informal groups, informal communication systems, types of teams, group vs. teams
3. Leadership (18 hrs) Nature, traits and approaches of leadership, determinants of leaders style and effectiveness
4. Stress Management (10 hrs) Meaning, cause and effect of stress, management of stress, conflicts in organization, conflict management
5. Nature and Importance of Time Management (6 hrs)
6. Organization Development and Change (10 hrs) Quality of work life, job enlargement, job enrichment, meaning, nature and importance of change approaches to organizational change, resistance to change, how manage change

### RECOMMENDED BOOKS

1. Organisational Behaviour by Shashi Gupta and Rosy Joshi; Kalyani, Publication
2. Organizational Behaviour by Luthans Fred, McGraw Hill, New Delhi
3. Organizational Theory and Behaviour by LN Prasad, Sultan Chand and

Sons, New Delhi

4. Organization Behaviour by Stephen and Robbins; Prentice Hall of India, New Delhi
5. Human Relation and Organization Behaviour by RS Dewedi, MacMillan, India
6. Management of Organisational Behaviour by Hersey, Blanchard and Johnson, Pearson Education Inc., Delhi

### **TUTORIAL ASSIGNMENTS**

1. Explain the outcome of Ahmedabad experiment
2. How to overcome stress? Explain various steps
3. Explain leadership approaches
4. Important factors affecting of quality of work life



## 2.6 INDEPENDENT STUDY AND PRESENTATION

### RATIONALAE

This course had been introduced for the first time to have noval experience with the aim of developing in students the communication (written and oral) ability and habit of self study which will make them self learners. This is not a subject for which there is external theory examination.

Through this course, the students will have the opportunity of self and independent study by searching literature. They will prepare papers and presentations. The teachers will provide topics for self learning.

There will be internal and external assessment for the work done and performance.

The topics must be chosen from the curriculum only. Situational approach should be adopted through case studies relating to real life of individual, family, organisation etc. in Indian or international context.

Following will be the assessment

criteria: Preparation of study paper

	-
	40%
Presentation and viva	-
	60%

### Note:

**Concerned teacher(s) should prepare an exhaustive list of topics for independent study and presentation. The student may select the topic of his/her interest in consultation with teacher.**

## 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 hines i.e. band saw, circular saw, rip saw, bow saw and trammels.  
 . Universal wood working machine and wood turning lathe

4

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

e a) Cross

m lap joint b)

o T-lap

n joint

s c) Corner lap joint

t d) Mortise and

r tenon joint e)

a Dovetail joint

t f) Prepare a file handle or any utility items by wood turning  
 i lathe

o

## n2. **Fitting and Plumbing Shop**

a2.1. Introduction to fitting shop, common materials used in  
 n fitting shop, description and demonstration of various types of  
 d work-holding devices and surface plate, V-block

u2.2 Demonstration and use of simple operation of hack-sawing,  
 s demonstration of various types of blades and their uses  
 e

o2.3 Demonstrate and use of all important fitting shop tools with the  
 f help of neat sketches (files, punch, hammer, scraper, taps and  
 dyes etc.)

w

o2.4 Introduction of chipping, demonstration on chipping and its  
 o applications.

d Demonstration and function of chipping tools.

w2.5 Description, demonstration and practice of simple operation  
 o of hack saw, straight and angular cutting.

r

k2.6 Demonstrations, description and use of various types of blades -  
 i their uses and method of fitting the blade.

n

g2.7 Introduction and use of measuring tools used in fitting shop like:  
 Try square, Steel rule, Measuring Tape, Outside micrometer,  
 m Vernier Caliper and Vernier Height Gauge

a

c

2. various plumbing shop tools, Safety precautions. Introduction  
 8 Description, demonstration and practice of thread cutting, pipe dies,  
 Demonstration and practice of Pipe Fittings such as Sockets,  
 Elbow, Tee, Reducer, Nipple, Union coupling, plug, Bend, Float  
 2 valves and Taps

9 Job: Cutting and filing practice on a square of 45 X 45 mm<sup>2</sup> from MS flat

P Job: Angular cutting practice of 45° (on the above job)

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

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

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

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

:

### 3. Welding Shop

D

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

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

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

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

a 3.5 Demonstration of welding defects and Various types of  
 w joints and end preparation  
 i

n

g Job: Preparation of cap joint by arc welding

Job: Preparation of Tee joint by arc welding

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

J sheet pieces) Job: Gas welding practice on  
o worn-out and broken parts

#### b4. **Paint Shop**

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

B

rJob: Preparation of surface before painting such as cleaning,  
a sanding, putty, procedure and application of primer coat, and  
z painting steel item.

iJob: Painting practice by brush on MS sheet

nJob: Practice of dip painting

gJob: Practice of lettering: Name plates / Sign board

Job: Polishing and painting on wooden and metallic surfaces

PJob: Practical demonstration of powder coating

r

#### a5. **Forging and sheet metal shop**

c

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

e

5.1 Forge a L hook or Ring from MS rod 6 mm  $\phi$

U

s5.2 Forge a chisel and give an idea of hardening and tempering

e

5.3 Lap joint with forge welding

o

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

S

p 5.5 Making sheet metal joints

e

l 5.6 Making sheet metal tray or a funnel or a computer chassis

t

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

(

o

n

#### 6. **Electric Shop**

6.1 Demonstration of tools commonly used in Electric Shop

M

S

6.2 Safety precautions, electric shock treatment

6 like: wires, fuses, ceiling roses, battens, cleats and allied items

### 36.4 Demonstration of Voltmeter, Ammeter, Multimeter and Energy meter

D

eJob: Wiring practice in batten wiring, plastic casing-capping and conduit

oJob: Control of one lamp by one switch Job: Control of one lamp by two switches Job: Control of one bell by one switch

SJob: Assemble a Tube light

tJob: 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

iJob: Laying out of complete wiring of a house (Single-phase and Three- phase)

n

## 7. Electronics Shop

o

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

C

a) Multi-meter digital

o

b) Single beam simple CRO , function of every knob on the front panel

m

c) Power supply , fixed voltage and variable voltage, single output as well as dual output.

o

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

E

l

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

t

7.4 Demonstrate and practice the skill to remove components/wires by unsoldering

r

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

n

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

t

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

r

- b connectors suitable for general- purpose audio video use.
- e Some of such connectors e.g. 2
- l and 3 pin mains plug and sockets, Banana plugs, sockets
- o and similar male and female connectors and terminal
- w strips.
- : b) Various types of switches such as: normal/miniature
- a 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.

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