4.1 ENGLISH AND COMMUNICATION SKILL - II

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RATIONALE

Communication II moves a step further from Communication Skills I and is aimed at enhancing the linguistic competency of the students. Language as the most commonly used medium of self-expression remains indispensable in all spheres of human life – personal, social and professional. This course is intended to make fresh ground in teaching of Communicative English as per the requirements of National Skill Quality Framework.

COURSE OUTCOMES

After undergoing this course, the learners will be able to:

CO1: Communicate effectively with an increased confidence; read, write and speak in English language fluently.

CO2: Comprehend special features of format and style of formal communication through various modes.

CO3: Write a Report, Resume, make a Presentation, Participate in GDs and Face Interviews

CO4: Illustrate use of communication to build a positive self-image through self-expression and develop more productive interpersonal relationships.

DETAILED CONTENTS

UNIT I

Reading

1.1 Portrait of a Lady - Khushwant Singh

1.2 The Doctor's Word by R K Narayan

1.3 Speech by Dr Kiran Bedi at IIM Indore2007 Leadership Concepts

1.4 The Bet - by Anton Chekov

UNIT II

Effective Communication Skills

2.1 Modern means of Communication (Video Conferencing, e- mail, Teleconferencing)

2.2 Effective Communication Skills: 7 C's of Communication
2.3 Non-verbal Communication – Significance, Types and Techniques for Effective Communication
2.4 Barriers and Effectiveness in Listening Skills
2.5 Barriers and Effectiveness in Speaking Skills

Unit III

Professional Writing

3.1 Correspondence: Enquiry letters, placing orders, complaint letters
3.2 Report Writing
3.3 Memos
3.4 Circulars
3.5 Press Release
3.6 Inspection Notes and tips for Note-taking
3.7 Corrigendum writing
3.8 Cover Letter

UNIT IV

Grammar and Vocabulary

4.1 Prepositions
4.2 Conjunctions
4.3 Punctuation
4.4 Idioms and Phrases: A bird of ill omen, A bird's eye view, A burning question, A child's play, A cat and dog life, A feather in one's cap, A fish out of water, A shark, A snail's pace, A snake in the grass, A wild goose chase, As busy as a bee, As faithful as dog, Apple of One's eye, Behind one's back, Breath one's last, Below the belt, Beat about the bush, Birds of a feather flock together, Black Sheep, Blue blood, By hook or crook, Chicken hearted, Cut a sorry figure ,Hand in glove, In black and white, In the twinkling, In full swing ,Is blind as a bat, No rose without a thorn, Once in a blue moon, Out of the frying pan in to the fire, know no bounds ,To back out, To bell the cat, To blow one's trumpet, To call a spade a spade, To cut one's coat according to one's cloth, To eat humble pie, To give ear to, To have a thing on one's finger tips, To have one's foot in the grave, To hold one's tongue, To kill two birds with one stone, To make an ass of oneself, To put two and two together, To the back bone, Turn coat, ups and downs.
4.5 Pairs of words commonly misused and confused: Accept-except, Access-excess, Affect-effect, Artificial- artful, Aspire-expire, Bail-bale, Bare-bear, Berth-birth, Beside-besides, Break-brake, Canvas-canvass, Course- coarse, Casual-causal, Council-counsel,

Continual-continuous, Coma-comma, Cue- queue, Corpse- corps-core, Dairy-diary, Desert-dessert, Dual-duel, Dew- due, Die-dye, Draft- draught-drought, Device-devise, Doze-dose, Eligible-illegible, Emigrant- immigrant, Envelop-envelope, Farther-further, Gate-gait, Goal-goal, Human-humane, Honorable-honorary, Hail-hale, Hair-heir-hare, Industrial-industrious, Impossible- impassable, Idle-idol-ideal, Lose-loose, Later-latter, Lesson-lessen, Main-Mane, Mental-mantle, Metal-mettle, Meter-metre, Oar-ore, Pray-prey, Plain-plan, Principal - principle, Personal- personnel, Roll- role, Route-rout- roote, Stationary-stationery, Union- unity, Urban- urbane, Vocation- vacation, Vain- vein-vane, Vary- very.

4.6 Translation of Administrative and Technical Terms in Hindi or Mother tongue: Academy, Abandon, Acting in official capacity, Administrator, Admission, Aforesaid, Affidavit, Agenda, Alma Master, Ambiguous, Appointing Authority, Apprentice, Additional, Advertisement, Assistant, Assumption of charge, Assurance, Attested copy, Bonafide, Bond, Cashier, Chief Minister, Chief Justice Clerical error, Commanding ,Officer, Consent, Contractor, corruption, Craftsman, Compensation, Code, Compensatory allowance, Compile, Confidential letter, Daily Wager, Data, Dearness allowance, Death - Cum Retirement, Dispatch, Dispatch Register, Disciplinary, Disciplinary Action, Disparity Department, Dictionary, Director, Director of Technical Education, Earned Leave, Efficiency Bar, Estate, Exemption, Executive Engineer, Extraordinary, Employment Exchange, Flying Squad, General Body, Head Clerk, Head Office, High Commission, Inconvenience, Income Tax, Indian Assembly Service, Justify, Legislative Assembly, Negligence, Officiating ,Office Record, Office Discipline, On Probation, Part Time, Performance, Polytechnic, Proof Reader Precautionary, Provisional, Qualified, Regret, Responsibility, Self-Sufficient, Senior, Simultaneous ,Staff, Stenography ,Superior, Slate, Takeover, Target Data Technical Approval, Tenure, Temporary, Timely Compliance, Under Investigation, Under Consideration, Verification, Viva-voce, Write off, Working Committee, Warning, Yours Faithfully , Zero Hour.

UNIT V

Employability Skills

5.1 Presentation Skills: How to prepare and deliver a good presentation

5.2 Telephone Etiquettes

5.3 Importance of developing employable and soft skills

5.4 Resume Writing: Definition, Kinds of Resume, Difference between Bio-data and Curriculum Vitae and Preparing a Resume for Job/ Internship

5.5 Group discussions: Concept and fundamentals of GD, and learning Group Dynamics.

5.6 Case Studies and Role Plays

PRACTICAL EXERCISES

1. Reading Practice of the above lessons in the Lab Activity classes.
2. Comprehension exercises of unseen passages along with the given lessons.
3. Vocabulary enrichment and grammar exercises based on the above selective readings.
4. Situational Conversation: Requesting and responding to requests; Expressing sympathy and condolence.
5. Warning; Asking and giving information.
6. Getting and giving permission.
7. Asking for and giving opinions.
8. A small formal and informal speech.
9. Seminar.
10. Debate.
11. Interview Skills: Preparing for the Interview and guidelines for success in the Interview and significance of acceptable body-language during the Interview.
12. Written Drills will be undertaken in the class to facilitate a holistic linguistic competency among learners.
13. Participation in a GD, Functional and Non-functional roles in GD, Case Studies and Role Plays
14. Presentations, using audio-visual aids (including power-point).
15. Telephonic interviews, face to face interviews.
16. Presentations as Mode of Communication: Persuasive Presentations using multi-media aids.
17. Practice of idioms and phrases on: Above board , Apple of One's eye , At sea, At random, At large, A burning question, A child's play, A wolf in sheep's clothing, A deal, Breath one's last, Bid fair to, Beat about the bush, Blue Blood, Big Gun, Bring to Book, Cut a sorry figure, Call names, Carry weight, Dark Horse, Eat Humble pie, Feel small, French leave, Grease the palm, Go against the grains, Get One's nerves, Hard and Fast, Hue and Cry, Head and ears, In full swing, Jack of all trades, know no bounds, kiss the dust, Keep an eye on, Lion's share, learn by rote, Null and void, on the cards, Pull a long face, Run amuck, Right and Left, Rain on Shine, Small talk, Take to one's heels, Tooth and nail, to take by storm, , Wet blanket, Yearn for.

RECOMMENDED BOOKS

1. Alvinder Dhillon and Parmod Kumar Singla, "Text Book of English and Communication Skills Vol – 1, 2", M/s Abhishek Publications, Chandigarh.

2. J Sethi, Kamlesh Sadanand & DV Jindal, "Course in English Pronunciation", PHI Learning Pvt. Ltd., New Delhi.
3. Wren and Martin, "High School English Grammar and Composition" .
4. NK Aggarwal and FT Wood, "English Grammar, Composition and Usage", Macmillan Publishers India Ltd., New Delhi.
5. RC Sharma, and Krishna Mohan, "Business Correspondence & Report Writing", (4th Edition), by Tata MC Graw Hills, New Delhi.
6. Varinder Kumar, Bodh Raj & NP Manocha, "Business Communication Skills", Kalyani Publisher, New Delhi.
7. Kavita Tyagi & Padma Misra, "Professional Communication", PHI Learning Pvt. Ltd., New Delhi.
8. Nira Konar, "Communication Skills for Professionals", PHI Learning Pvt. Ltd., New Delhi.
9. Krishna Mohan & Meera Banerji, "Developing Communication Skills", (2nd Edition), Macmillan Publishers India Ltd., New Delhi.
10. M. Ashraf Rizwi, "Effective Technical Communication", Tata MC Graw Hills, New Delhi.
11. Andrea J Rutherford, "Basic Communication Skills for Technology", Pearson Education, New Delhi.

INSTRUCTIONAL STRATEGY

This is practice based subject and topics taught in the class should be practiced in the Lab regularly for development of required communication skills in the students. Emphasis should be given on practicing of communication skills. This subject contains five unit of equal weight age.

4.2 COMPUTER ORGANISATION & ARCHITECTURE

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RATIONALE

The subject plays very important role at this level to give exposure to the students about detailed organization of currently available personal computers in order to understand their functioning. It will further help the students in understanding the architecture of computers. The students will also get familiar with multi-processor systems.

COURSE OUTCOMES

After undergoing the subject, the students will be able to:

CO1: Use CPU, register and stack.
CO2: Describe micro programmed and hardwired control.
CO3: Compare RISC and CISC architecture.
CO4: Study memory hierarchy and memory types.
CO5: Explain and perform the functions of BIOS.
CO6: Demonstrate multi-processor systems.

DETAILED CONTENTS

UNIT I

CPU Organisation

General register organisation, stack organisation, instruction formats (three address, two address, one address, zero address and RISC instruction). Addressing modes: Immediate, register, direct, in direct, relative, indexed.

UNIT II

Memory Organisation

Memory Hierarchy, RAM and ROM chips, Memory address map, Memory connections to CPU. Auxiliary memory: Magnetic disks and magnetic tapes. Associative memory, Cache memory, Virtual memory, Memory management hardware, Read and Write operation

UNIT III

I/O Organisation

Basis Input output system (BIOS) - Function of BIOS, Testing and initialization, Configuring the system, Modes of Data Transfer, Programmed I/O: Synchronous, asynchronous and interrupt initiated. DMA data transfer

UNIT IV

Architecture of Multi-processor systems

Forms of parallel processing, Parallel processing and pipelines, basic characteristics of multiprocessor, General purpose multiprocessors, Interconnection networks: time shared common bus, multi-port memory, cross bar switch, multi stage switching networks and hyper cube structures.

UNIT V

I/O Interface

Define I/O interface, Input-Output Interface, Explain methods of Asynchronous Data transfer. Synchronous Data Transfer, Strobe Control, Handshaking, Describe Asynchronous Serial Transfer.

RECOMMENDED BOOKS

1. Computer Architecture and Organisation by Moris Mano.
2. Computer Architecture by J. P. Hayes.
3. Structured Computer Organisation By Tanenbaum Andrew S, PHI.

SUGGESTED WEBSITES

1. http://swayam.gov.in
2. https://ekumbh.aicte-india.org/

INSTRUCTIONAL STRATEGY

This is theoretical subject for basic fundamental knowledge and contains five units of equal weight age.

4.3 DATA STRUCTURES USING C

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RATIONALE

Data structures are the techniques of designing the basic algorithms for real-life projects. Understanding of data structures is essential and this facilitates the understanding of the language. The practice and assimilation of data structure techniques is essential for programming. The knowledge of 'C' language and data structures will be reinforced by practical exercises during the course of study. The course will help students to develop the capability of selecting a particular data structure.

COURSE OUTCOMES

After undergoing the subject, the students will be able to:
CO1: Identify the problem and formulate an algorithm for it.
CO2: Recognize the best data structures to solve the problem
CO3: Store data, process data using appropriate data structures
CO4: Sort the data in ascending or descending order.
CO5: Implement trees and various traversing techniques.
CO6: Develop searching and sorting algorithms and to compare them for checking efficiency.

DETAILED CONTENTS

UNIT I

Fundamental Notations

1.1 Problem solving concept top down and bottom up design, structured programming
1.2 Concept of data types, variables and constants
1.3 Concept of pointer variables and constants

UNIT II

Arrays and Linked Lists

2.1 Concept of Arrays
2.2 Storage representation of multi-dimensional arrays.

2.3 Operations on arrays with Algorithms (searching, traversing, inserting, deleting)
2.4 Introduction to linked list
2.5 Representation of linked lists in Memory
2.6 Operations on linked list (Insertion, deletion and traversals)
2.7 Application of linked lists
2.8 Doubly linked lists
2.9 Operations on doubly linked lists (Insertion, deletion and traversals)

UNIT III

Stacks, Queues and Recursion

3.1 Introduction to stacks
3.2 Representation of stacks
3.3 Implementation of stacks
3.4 Applications of stacks
3.5 Introduction to queues
3.6 Implementation of queues
3.7 Circular Queues
3.8 De-queues
3.9 Application of Queues
3.10 Recursion

UNIT IV

Trees

4.1 Concept of Trees
4.2 Representation of Binary tree in memory
4.3 Traversing Binary Trees (Pre order, Post order and In order)
4.4 Searching, inserting and deleting binary search trees
4.5 Introduction to Heap

UNIT V

Sorting and Searching

5.1 Introduction to sorting and searching
5.2 Search algorithm (Linear and Binary)
5.3 Sorting algorithms (Bubble Sort, Insertion Sort, Quick Sort, Selection Sort, Merge Sort, Heap Sort

PRACTICAL EXERCISES

Write programs in C to implement:

1. Sorting an array.
2. The addition of two matrices using functions.
3. The multiplication of two matrices.
4. Push and pop operation in stack.
5. Inserting and deleting elements in queue.
6. Inserting and deleting elements in circular queue.
7. Insertion and deletion of elements in linked list.
8. Insertion and deletion of elements in doubly linked list.
9. The Factorial of a given number with recursion and without recursion.
10. Fibonacii series with recursion and without recursion.
11. Program for binary search tree operation.
12. The selection sort technique.
13. The bubble sort technique.
14. The quick sort technique.
15. The merge sort technique.
16. The binary search procedures to search an element in a given list.
17. The linear search procedures to search an element in a given list.

RECOMMENDED BOOKS

1. Data Structure using C by Robert Kruse; Prentice Hall of India.
2. Data Structure through C by Yashwant Kanekar; BPB Publications.
3. Data structures – Schaum's Outline Series by Lipschutz; McGraw Hill Education Pvt Ltd, New Delhi.
4. Data Structure using C by ISRD Group ; Tata McGraw Hills Education Pvt Ltd , New Delhi.
5. Expert Data Structures with C by R.B. Patel ; Khanna Publishers, New Delhi.
6. Data Structures and Algorithm Using C by RS Salaria; Khanna Book Publishing Co. (P) Ltd. New Delhi.
7. Data Structure through C in depth by SK Srivastava, Deepali Srivastava; BPB Publications.
8. Data Structure through "C" Language by Sameeran Chattopadhyay, Matangini

Chottopadhyay; BPB Publications
9. Data Structure through “C” Language by DOEACC; BPB Publications
10. Data Structure using “C” Lab Workbook by Shukla; BPB Publications
11. e-books/e-tools/relevant software to be used as recommended by AICTE/HSBTE/NITTTR.

SUGGESTED WEBSITES

1. http://swayam.gov.in

INSTRUCTIONAL STRATEGY

This is a programming skill based subject and topics taught in the class should be practiced in the lab regularly for development of required skills in the students. This subject contains five units of equal weight age with hands on practice for programming skill development.

4.4 OBJECT ORIENTED PROGRAMMING USING JAVA

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RATIONALE

Object orientation is a new approach to understand the complexities of the real world. In contrast to the earlier approaches like procedural etc, object orientation helps to formulate the problems in a better way giving high reliability, adaptability and extensibility to the applications. The students are already familiar with this concept of programming in C which is the basic for JAVA. This course offers the modern programming language JAVA that shall help the students to implement the various concept of object orientation practically.

COURSE OUTCOMES

After undergoing the subject, the students will be able to:
CO1: Learn the concepts of OOPS using JAVA.
CO2: Execute the language construct and classes concepts.
CO3: Describe and implement inheritance and polymorphism.
CO4: Install Java IDE, Compiler, Java virtual machines
CO5: Explain and implement the abstract class and interface.
CO6: Implement the exception handling in live projects

DETAILED CONTENTS

UNIT I

Introduction of Features

Fundamentals of object oriented programming – procedure oriented programming Vs. object oriented programming (OOP) Object oriented programming concepts – Classes, object, object reference, abstraction, encapsulation, inheritance and polymorphism
Introduction of eclipse (IDE) for developing programs in Java.

UNIT II.

Language Constructs, Classes and objects

Review of constructs of C used in JAVA : variables, types and type declarations, data types, increment and decrement operators, relational and logical operators; if then else clause;

conditional expressions, input using scanner class and output statement, loops, switch case, arrays, methods. Creation, accessing class member.

UNIT III

Inheritance and Polymorphism

Definition of inheritance, protected data, private data, public data, constructor chaining, order of invocation, types of inheritance, single inheritance, multilevel inheritance, hierarchical inheritance, hybrid inheritance

Method & constructor overloading, method overriding, up-casting and down-casting.

UNIT IV

Abstract class & Interface

Key points of Abstract class & interface, difference between an abstract class & interface, implementation of multiple inheritance through interface.

UNIT V

Exception Handling

Definition of exception handling, implementation of keywords like try, catch, finally, throw & throws. Importance of exception handling in practical implementation of live projects.

PRACTICAL EXERCISES

1. Write a program in JAVA to print "Hello" using classes.
2. Write a program to input using Scanner Class.
3. Write a program to print factorial of a Number.
4. Write a program to create a Class and make objects of that class.
5. Create a class with data members Feet, Inches and add them.
6. Create a class using constructors.
7. Create a class and show the use of Single inheritance.
8. Create a class and show the use of multiple inheritance.
9. Create a class and show the use of Multi-level inheritance.
10. Create a class showing the use of Constructor Overloading.
11. Create a program showing the use of Interfaces.
12. Create a program using Try and Catch Block.

RECOMMENDED BOOKS

1. Object Oriented Programming using JAVA by Sunil Bhutani & Amrendra Shara; Eagle Publishing House, Jalandhar
2. Java Programming by Sachin Malhotra; Oxford University Press, New Delhi
3. Head First Java, O-REILLY, Kathy Sierra & Bert Bates.
4. Object-Oriented programming With Java, C.Thomas Wu.
5. Advance Java Programming by Uttam K. Roy; Oxford University Press, New Delhi
6. e-books/e-tools/relevant software to be used as recommended by AICTE/ HSBTE/ NITTTR.

SUGGESTED WEBSITES

1. http://swayam.gov.in

INSTRUCTIONAL STRATEGY

This is a programming skill based subject and topics taught in the class should be practiced in the lab regularly for development of required skills in the students. This subject contains five units of equal weight age with hands on practice for programming skill development.

4.5 OPEN ELECTIVE

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RATIONALE

Open electives are very important and play major role in implementation of National Education Policy. These subjects provide greater autonomy to the students in the curriculum, giving them the opportunity to customize it to reflect their passions and interests. The system of open electives also encourages cross learning, as students pick and choose subjects from the different streams.

COURSE OUTCOMES

At the end of the open elective, the students will be able to:

CO1: State the basic concepts and principles about the subject of interest.
CO2: Perform in a better way in the professional world.
CO3: Select and learn the subject related to own interest.
CO4: Explore latest developments in the field of interest.
CO5: Develop the habit of self-learning through online courses.

LIST OF OPEN ELECTIVES (The list is indicative and not exhaustive)

1. Computer Application in Business
2. Introduction to NGO Management
3. Basics of Event Management
4. Event Planning
5. Administrative Law
6. Introduction to Advertising
7. Moodle Learning Management System
8. Linux Operating System
9. E-Commerce Technologies
10. NCC
11. Marketing and Sales
12. Graphics and Animations
13. Digital Marketing
14. Human Resource Management
15. Supply Chain Management

16. TQM

GUIDELINES

Open Elective shall be offered preferably in online mode. Online mode open elective shall preferably be through Massive Open Online Courses (MOOCs) from Swayam, NPTEL, Upgrad, Udemy, Khan Academy or any other online portal to promote self-learning. A flexible basket of large number of open electives is suggested which can be modified depending upon the availability of courses at suggested portals and requirements. For online open electives, department coordinators shall be assigned to monitor and guide the group of students for selection of minimum 20 hours duration online course of their choice. For offline open electives, a suitable relevant subject shall be offered by the respective department to the students with minimum 40% of the total class strength as per present and future requirements.

Assessment of MOOCs open elective shall be based on continuous evaluation by the respective coordinator. The coordinator shall consider the submitted assignments by the students from time to time during the conduct of MOOCs. The MOOCs assessment shall be conducted by the coordinator along with one external expert by considering submitted assignments out of 100 marks.

In case, no suitable open elective is available online, only then the course may be conducted in offline mode. The assessment of offline open elective shall be internal and external. The offline open elective internal assessment of 40 marks shall be based on internal sessional tests; assignments etc. and external assessment of 60 marks shall be based on external examination at institute level.

NOTE

The students enrolled under NCC will compulsorily undertake NCC as an open elective subject.

SUGGESTED WEBSITES

1. https://swayam.gov.in/
2. https://www.udemy.com/
3. https://www.upgrad.com/
4. https://www.khanacademy.org/

4.6 MINOR PROJECT

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RATIONALE

Minor project work will help in developing the relevant skills among the students as per National Skill Qualification Framework. It aims at exposing the students to the present and future needs of various relevant industries. It is expected from the students to get acquainted with desired attributes for industrial environment. For this purpose, students are required to be involved in Minor Project Work in different establishments.

COURSE OUTCOMES

After undergoing this course, the students will be able to:

CO1: Define the problem statement of the minor project according to the need of industry.
CO2: Work as a team member for successful completion of minor project.
CO3: Write the minor project report effectively.
CO4: Present the minor project report using PPT.

GUIDELINES

Depending upon the interest of the students, they can develop minor projects as per present and future demand of the industry. The supervisors may guide the students to identify their minor project work and chalk out their plan of action well in advance. As a minor project activity each student is supposed to study the operations at site and prepare a detailed project report of the observations/processes/activities. The supervisor may create a group of 4-5 students as per their interest to work as a team for successful completion of the minor project.

The supervisor shall evaluate the students along with one external expert by considering the following parameters:

	Parameter	**Weightage**
I	Defining problem statement, focus and approach	20%
ii	Innovation / creativity	20%
iii	Report Writing	20%
iv	Power Point Presentation	20%
v	Viva - voce	20%