Books & References

1. Virgilio Borobio, Nuevo ELE 1, Curso de Español para extranjeros,2002, SM, Madrid.
2. Luis Aragonés y Ramón Palencia: Gramática de uso del Español, teoría y práctica, Ed. SM, Madrid.
3. Lisa Prange y Francisca Pichardo Castro: Por Turnos, Actividades para aprenderespañoljugando, Ed. Difusión, Madrid.
4. Chamorro, M. D.: Abanico, libro del alumno, Ed. Difusión, Madrid.
5. Deutsch FÜr Ausländer – Schulz-Griesbach

BCS-01 INTRODUCTION TO C PROGRAMMING

Course Category	:	Engineering Fundamental (EF) for other Departments
Pre-requisite Subject	:	NIL
Contact Hours/Week	:	Lecture : 3, Tutorial : 1 , Practical: 2
Number of Credits	:	5
Course Assessment Methods	:	Continuous assessment through tutorials, attendance, home assignments, quizzes, practical work, record, viva voce and Three Minor tests and One Major Theory & Practical Examination
Course Outcomes	:	The students are expected to be able to demonstrate the following knowledge, skills and attitudes after completing this course

1. Read and understand Cprograms.
2. Discuss basic theory and practice ofprogramming.
3. Design and implement practical programs using Clanguage.
4. Use compiler and feel comfortable with Windowsenvironment
5. Identify and fix common Cerrors

Topics Covered

UNIT-I

Basics of Computer: Introduction to Digital Computer, Basic Operations of Computer, Functional Components of Computer, Classification of Computers. Introduction to Operating System: DOS, Windows, Linux, Function, Services and Types. Basics of Programming: Approaches to Problem Solving, Concept of Algorithm and Flow Charts, Types of Computer Languages:- Machine Language, Assembly Language and High Level Language, Concept of Assembler, Compiler, Loader and Linker. 9

UNIT-II

Standard I/O in "C", Fundamental Data Types and Storage Classes: Character Types, Integer, Short, Long, Unsigned, Single and Double-Precision Floating Point, Storage Classes, Automatic, Register, Static and External, Operators and Expressions: Using Numeric and Relational Operators, Mixed Operands and Type Conversion, Logical Operators, BitOperations, Operator Precedence and Associativity, C Conditional Program Execution: Applying if and Switch Statements, Nesting if and else, Restrictions on switch Values, Use of Break, Program Loops and Iteration: Uses of while, do and for Loops, Multiple Loop Variables, Assignment Operators, Using Break and Continue 9

UNIT-III

Arrays: One Dimensional, Multidimensional Array and their Applications, Declaration and Manipulation of Arrays Structures: Purpose and Usage of Structures, Declaring Structures, Assigning of Structures, Strings: String Variable, String Handling Functions, Array of Strings, Functions: Designing Structured Programs, Functions in C, User Defined and Standard Functions, Formal vs. Actual Arguments, Function Category, Function Prototype, Parameter Passing, Recursive Functions. Storage Classes: Auto, Extern, Register and Static Variables 9

UNIT-IV

Pointers: Pointer Variable and its Importance, Pointer Arithmetic and Scale Factor, Compatibility, Dereferencing, L value and R-Value, Pointers and Arrays, Pointer and Character Strings, Pointers and Functions, Array of Pointers, Pointers to Pointers Dynamic Memory Allocation Structure and Union: Declaration and Initialization of Structures, Structure as Function Parameters, Structure Pointers, Unions. File Management: Defining and Opening A File, Closing A File, Input/Output Operations in Files, Pre-Processor Directives, Command Line Arguments. 9

EXPERIMENTS

1. Write a program that finds whether a given number is even orodd.
2. Write a program that tells whether a given year is a leap year ornot.
3. Write a program that accepts marks of five subjects and finds percentage and prints grades according to the followingcriteria:
   a. Between90-100%--Print„A"
   b. 80-90%...Print„B"
   c. 60-80%....Print„C"
   d.---------- Below60% Print„D"
4. Write a program that takes two operands and one operator from the user and perform the operation and prints the result by using Switchstatement.
5. Write a program to print sum of even and odd numbers from 1 to Nnumbers.

6. Write a program to print the Fibonacciseries.
7. Write a program to check whether the entered number is prime ornot.
8. Write a program to find the reverse of anumber.
9. Write a program to print Armstrong Numbers from 1 to100.
10. Write a program to convert binary number into decimal number and viceversa.
11. Write a program that simply takes elements of the array from the user and finds the sum oftheseelements.
12. Write a program that inputs two arrays and saves sum of corresponding elements of these arrays in a third array and printsthem.
13. Write a program to find the minimum and maximum element of thearray.
14. Write a program to search an element in array using LinearSearch.
15. Write a program to sort the elements of the array in ascending order using Bubble Sort technique.
16. Write a program to add and multiply two matrices of orderNxN.
17. Write a program that finds the sum of diagonal elements of a MxNmatrix.
18. Define a structure data type TRAIN_INFO. The typecontain
    a. Train No.: integertype
    b. Train name:string
    c. Departure Time: aggregate typeTIME
    d. Arrival Time : aggregate typeTIME
    e. Start station:string
    f. End station :string

    The structure type Time contains two integer members: hour and minute. Maintain a train Time table and
19. implement the following operations:
    i. List all the trains (sorted according to train number) that depart from a particular section.
    ii. List all the trains that depart from a particular station at a particulartime.
    iii. List all he trains that depart from a particular station within the next one hour of a giventime.
    iv. List all the trains between a pair of start station and endstation.
20. Write a program to swap two elements using the concept ofpointers.
21. Write a program to compare the contents of two files and determine whether they are same ornot.

Textbooks

1. Jeri R. Hanly, Elliot B. Koffman, Problem Solving and Program Design in C, 7th edition, Pearson
2. Childt ,HerbertComplete reference with C Tata McGraw Hill

Reference books

1. Kerninghan and Ritchie, The C programming language, Prentice Hall
2. Samuel P. Harbison, and Guy L. Steele Jr., C-A Reference Manual, Fifth Edition, Prentice Hall, 2002