ALLIED PAPER : DISCRETE MATHEMATICS
(for B.Sc. Computer Technology & B.Sc. Multimedia and Web Technology)

Subject Description:
This subject deals with discrete structures like set theory, mathematical logic, relations, languages, graphs and trees.

Goal:
To learn about the discrete structures for computer based applications.

Objective:
On successful completion of this subject the students should have:
- Understanding the concepts of discrete mathematics
- Learning applications of discrete structures in Computer Science.

Unit I

Unit II

Unit III
Relations – Binary Relations – Set operation on relations-Types of Relations – Partial order relation – Equivalence relation – Composition of relations – Functions – Types of functions – Invertible functions – Composition of functions.

Unit IV

Unit V

Text Books:

Reference Books:
ALLIED PAPER : OBJECT ORIENTED PROGRAMMING WITH C++
(for B.Sc. Electronics & B.Sc. Electronics and Communication System)

Subject Description: This subject deals with the programming concepts of Object Oriented Programming using C++.

Goal: To learn about Object Oriented Programming concepts.

Objective: On successful completion of this subject the students should have:

- Writing programming ability on OOPS concepts like Encapsulation, Data abstraction, Inheritance, Polymorphism and Exception handling etc.,

UNIT – I


UNIT – II

Class and Objects: Declaring objects – Defining member functions – Static member variables and functions – Array of objects – Friend functions – Overloading member functions – Bit fields and Class – Constructor and Destructors – Characteristics – Calling constructor and Destructors – Constructor and Destructor with static member.

UNIT – III

Operator Overloading: Overloading unary, Binary operators – Overloading friend functions – Type conversion - Inheritance: Types of inheritance: Single, Multilevel, Multiple, Hierarchical, Hybrid and Multi path inheritance – Virtual Base classes – Abstract Classes.

UNIT – IV

Pointers: Declaration – Pointer to class, object – THIS pointer – Pointer to derived classes and base classes – Arrays – Characteristics – Arrays of classes – Memory models – New and delete operators – Dynamic objects – Binding, Polymorphisms and Virtual functions.

UNIT – V


TEXT BOOKS

REFERENCE BOOKS
ALLIED LAB : OBJECT ORIENTED PROGRAMMING WITH C++
(for B.Sc. Electronics & B.Sc. Electronics and Communication System)

1. Create a class to implement the data structure STACK . Write a constructor to initialize the TOP of the stack to 0. Write a member function POP( ) to delete an element. Check for overflow and underflow conditions.

2. Create a class ARITH which consists of a FLOAT and an integer Variable. Write member functions ADD( ), SUB ( ), MUL ( ), DIV ( ), MOD ( ) to perform addition, multiplication, division and modulus respectively. Write member functions to get and display values.

3. Create a class MAT has a 2-d matrix and R&C represents the rows and columns of the matrix. Overload the operators +, -, * to add subtract and multiply two matrices. Write member functions to get and display MAT object values.

4. Create a class STRING . Write member function to initialize, get and display strings. Overload the operator + to concatenate two strings, = = to compare two strings and a member function to find the length of the string.

5. Create a class which consists of EMPLOYEE detail like eno, ename, dept, basic-salary, grade. Write member functions to get and display them. Derive a class PAY from the above class and write a member function to calculate da , hra , pf depending on the grade and Display the Payslip in a neat format using console I/O.

6. Create a class SHAPE which consist of two VIRTUAL FUNCTIONS Cal_Area( ) and Cal_PERI to calculate AREA and PERIMETER of various figures. Derive three classes SQUARE,RECTANGLE and TRIANGLE from the class SHAPE and calculate AREA and PERIMETER of each class separately and Display the result.

7. Create two classes which consists of two private variables, one float And one integer variables in each class. Write member functions to get and display them. Write FRIEND function common to arguments. And the integer and float values of both the objects separately and Display the result.

8. Write a user defined function USERFUN( ) which has the formatting commands like setw( ), showpoint , showpos precision( ). Write a program which prints an multiplication table and uses USERFUN( ) for formatting.

9. Write a program to perform Insertion , Deletion and Updation using files.

10. Write a program which takes a file as argument and copies in to another file with line numbers using Command Line Arguments.
ALLIED PAPER : COMPUTER PROGRAMMING IN C
(for B.Sc. Bio-Chemistry and B.Sc. Bio-Technology Degree Courses)

COMPUTER PROGRAMMING IN C

UNIT I

UNIT II

UNIT III
Input function - Output function – compound and conditional statements - While loop – do.. while loop - for loop. Simple Programs using above verbs.

UNIT IV
Arrays - Rules for arrays - multiple subscripts in arrays - Multi-dimensional arrays - for loop with arrays - Simple programs.

UNIT V

TEXT BOOK:
COMPUTER PROGRAMMING IN C : V.Rajaraman
(PHI Publication)

REFERECE BOOKS :
l. PROGRAMMING IN ANSI C : E.Balagurusamy
(Tata McGraw Hill Pub.)

2. PROGRAMMING IN ANSI C : Ashok N.Kamthane
(Pearson Education)
ALLIED: COMPUTER PROGRAMMING IN C

LIST OF PRACTICALS

1. Write a C program to find the largest among the three given numbers.
2. Write a C program to print the given FIVE digit number in reverse order.
3. Write a C program to print first 50 terms of Fibonacci sequence.
4. Write a C program to find the smallest number in the given set of N numbers.
5. Write a C program to find the given word is palindrome or not.
6. Write a C program to count the number of positive, negative and zero integers from the set of N numbers.
7. Write a C program to sort the given set of N numbers in ascending order.
8. Write a C program to find the addition and subtraction of the given two square matrices.
9. Write a C program to find the multiplication of the given two square Matrices.
10. Write a C program to count the number of words and number of characters in a sentence.