## VISION

To impart quality education through state-of-the-art technologies to achieve academic excellence for transforming students into innovators.

## MISSION

To impart quality education through state-of-the-art technologies to achieve academic excellence for transforming students into innovators.

Creating a teaching-learning environment to produce industry ready and self-confident graduates. Motivate students to engage in creative projects throughout graduation.

To produce competitive graduates having creative skills and ethical values to succeed in their fields as well as the foundation for life-long learning.

## PROGRAM EDUCATIONAL OBJECTIVES (PEO)

1. To provide students with strong basic and advanced programming concepts so that they can build solutions or systems for complex problems.
2. The program provides the fundamental and perspective to attain life-long learning in the thrust areas of Computer Programming.
3. To produce graduates who have ability to pursue research or have a successful career in academia or industries or as entrepreneurs.
4. The aim is inculcating technical knowledge of the programme and imbibe ethics with moral behaviour in the graduates.

## PROGRAM SPECIFIC OBJECTIVES (PSO)

1. To acquire basic knowledge in hardware/software, algorithms, System Software, Computer graphics, Web design, Networking, and advanced computing for solving real-life and Research problems with the perspective of lifelong learning.
2. An ability to demonstrate Knowledge of data management systems like data acquisition and big data, Intelligent systems like AI, Data Science and Machine Learning, The techniques of data analytics like pattern recognition and knowledge discovery.
3. To develop skills which help to expand professional careers.

## COURSE OUTCOMES (CO)

1. Explain and classify different methodologies, concepts and approaches to System Software Programming.
2. Identify elements of language processors with various data structures used in development of one-pass and multi-pass assemblers. Write programs using control structures, arrays, functions, structures.
3. Examine macro processor, its usage and compare various loading and linking schemes.
4. Build various system programs using language processor development tools such as YACC and Lex.
5. Design code optimization-based solution for the given system problems by applying various techniques of compiler, interpreter and debugger.

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| | void readMatrix() //read element of array<br>float [][] transpose( ) //find transpose of first matrix<br>float [][] matrixMultiplication(Matrix second ) //multiply two matrices and return result<br>void displayMatrix(float [][]a) //display content of argument array<br>void displayMatrix() //display content<br>float maximum_of_array() // return maximum element of first array<br>float average_of_array( ) // return average of first array<br>create three object of Matrix class with different constructors in main and test all the functions in main<br>3. Write a program to demonstrate usage of different methods of Wrapper class<br>4. Write a program to demonstrate usage of String and StringBuffer clas<br>5. Define a class Cipher with following data<br>Field:<br>String plainText;<br>int key<br>Functions:<br>Cipher(String plaintext,int key)<br>String Encryption( )<br>String Decryption( )<br>Read string and key from command prompt and replace every character of string with character which is key place down from current character.<br>Example<br>plainText = "MBIT"<br>Key = 3<br>Encryption function written following String<br>" JFHW"<br>Decryption function will convert encrypted string to original form "MBIT" | | | | |
| **03** | Basic Program using Class<br>1. Create a class BankAccount that has Depositor name , Acc_no, Acc_type, Balance as Data Members and void createAcc() . void Deposit(), void withdraw() and void BalanceInquiry as Member Function. When a new Account is created assign next serial no as account number. Account number starts from 1<br>2. Create a class time that has hour, minute and second as data members. Create a parameterized constructor to initialize Time | | | | |

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| | Objects. Create a member Function Time Sum (Time, Time) to sum two time objects.<br>3. Define a class with the Name, Basic salary and dearness allowance as data members. Calculate and print the Name, Basic salary(yearly), dearness allowance and tax deduced at source (TDS) and net salary, where TDS is charged on gross salary which is basic salary + dearness allowance and TDS rate is as per following table.<br><br>DA is 74% of Basic Salary for all. Use appropriate member function. | | | | |
| **04** | Inheritance and interface<br>1. class Cricket having data members name, age and member methods display() and setdata(). class Match inherits Cricket and has data members no_of_odi, no_of_test. Create an array of 5 objects of class Match. Provide all the required data through command line and display the information.<br>2. Define a class Cipher with following data<br>Field:<br>String plainText;<br>int key<br>Functions:<br>Cipher(String plaintext,int key)<br>abstract String Encryption( )<br>abstract String Decryption( )<br>Derived two classes Substitution_Cipher and Caesar_Cipher override Encyption() and Decyption() Method. in substitute cipher every character of string is replace with another character. For example. In this method you will replace the letters using the following scheme.<br>Plain Text: a b c d e f g h i j k l m n o p q r s t u v w x y z<br>Cipher Text: q a z w s x e d c r f v t g b y h n u j m i k o l p<br>So if string consist of letter “gcet” then encrypted string will be ”ezsj” and decrypt it to get original string<br>In ceaser cipher encrypt the string same as program 5 of LAB 5.<br>3. Declare an interface called Property containing a method computePrice to compute and return the price. The interface is to be implemented by following two classes i) Bungalow and ii) Flat.<br>Both the classes have following data members<br>- name | | | | |

| Gross Salary | TDS |
|---|---|
| Rs. 100000 and below | NIL |
| Above Rs. 100000 | 10% on excess over 100000 |

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| | - constructionArea<br>The class Bungalow has an additional data member called landArea. Define computePrice for both classes for computing total price. Use following rules for computing total price by summing up sub-costs: Construction cost(for both classes):Rs.500/- per sq.feet<br>Additional cost ( for Flat) : Rs. 200000/-<br>( for Bungalow ): Rs. 200/- per sq.<br>feet for landArea<br>Land cost ( only for Bungalow ): Rs. 400/- per sq. feet<br>Define method main to show usage of method computePrice.<br>4. Define following classes and interfaces.<br>public interface GeometricShape {<br>public void describe();<br>}<br>public interface TwoDShape extends GeometricShape {<br>public double area();<br>}<br>public interface ThreeDShape extends GeometricShape {<br>public double volume();<br>}<br>public class Cone implements ThreeDShape {<br>private double radius;<br>private double height;<br>public Cone (double radius, double height)<br>public double volume()<br>public void describe()<br>}<br>public class Rectangle implements TwoDShape {<br>private double width, height;<br>public Rectangle (double width, double height)<br>public double area()<br>public double perimeter()<br>public void describe()<br>}<br>public class Sphere implements ThreeDShape {<br>private double radius;<br>public Sphere (double radius)<br>public double volume()<br>public void describe()<br>} | | | | |

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| | Define test class to call various methods of Geometric Shape | | | | |
| **05** | Inner Class: Define two nested classes: Processor and RAM inside the outer class: CPU with following data members<br>class CPU {<br>double price;<br>class Processor{ // nested class<br>double cores;<br>double catch()<br>String manufacturer;<br>double getCache()<br>void displayProcesorDetail()<br>}<br>protected class RAM{ // nested protected class<br>// members of protected nested class<br>double memory;<br>String manufacturer;<br>Double clockSpeed;<br>double getClockSpeed()<br>void displayRAMDetail()<br>}<br>}<br>1. Write appropriate Constructor and create instance of Outer and inner class and call the methods in main function<br>2. Write a program to demonstrate usage of static inner class, local inner class and anonymous inner class | | | | |
| **06** | Generics<br>1. Declare a class InvoiceDetail which accepts a type parameter which is of type Number with following data members<br>class InvoiceDetail <N extends Number> {<br>private String invoiceName;<br>private N amount;<br>private N Discount<br>// write getters, setters and constructors<br>}<br>Call the methods in Main class<br>2. Implement Generic Stack<br>3. Write a program to sort the object of Book class using comparable and comparator interface.<br>(Book class consist of book id, title, author and publisher as data members) | | | | |

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| **07** | Generics<br>1. Declare a class InvoiceDetail which accepts a type parameter which is of type Number with following data members<br>class InvoiceDetail <N extends Number> {<br>private String invoiceName;<br>private N amount;<br>private N Discount<br>// write getters, setters and constructors<br>}<br>Call the methods in Main class<br>2. Implement Generic Stack<br>3. Write a program to sort the object of Book class using comparable and comparator interface. (Book class consist of book id, title, author and publisher as data members) | | | | |
| **08** | Threading<br>1. Write a program to find prime number in given range using both method of multithreading. Also run the same program using executor framework<br>2. Assume one class Queue that defines queue of fix size says 15.<br>• Assume one class producer which implements Runnable, having priority NORM_PRIORITY +1<br>• One more class consumer implements Runnable, having priority NORM_PRIORITY-1<br>• Class TestThread is having main method with maximum priority, which creates 1 thread for producer and 2 threads for consumer.<br>• Producer produces number of elements and put on the queue. when queue becomes full it notifies other threads. Consumer consumes number of elements and notifies other thread when queue become empty. | | | | |
| **09** | Collection API:<br>1. Write a program to demostrate user of ArrayList, LinkedList ,LinkedHashMap, TreeMap and HashSet Class. And also implement CRUD operation without database connection using Collection API.<br>2. Write a program to Sort Array,ArrayList,String,List,Map and Set | | | | |
| **10** | File Handling Using Java:<br>1. Write a programme to count occurrence of a given words in a file.<br>2. Write a program to print it seltf.<br>3. Write a program to display list of all the files of given directory | | | | |

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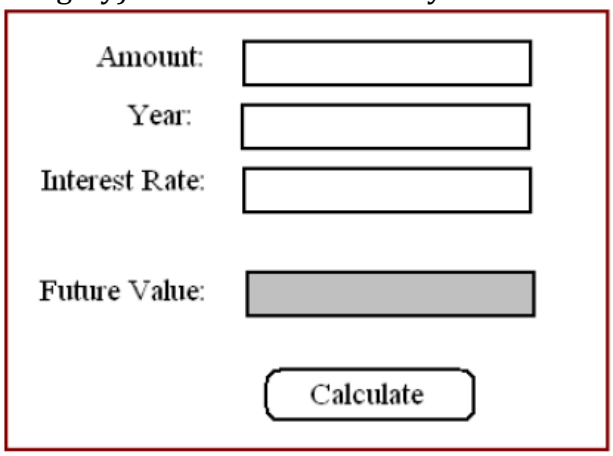
| **11** | Networking<br>1. Implement Echo client/server program using TCP<br>2. Write a program using UDP which give name of the audio file to server and server reply with content of audio file | | | | |
| **12** | GUI<br>1. Write a programme to implement an investement value calculator using the data inputed by user. textFields to be included are amount, year, interest rate and future value. The field "future value" (shown in gray) must not be altered by user.<br>  <br><br>2. Write a program which fill the rectangle with the selected color when button pressed. | | | | |

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