DEPARTMENT OF COMPUTER SCIENCE
C-PROGRAMMING LAB
Subject Code: BCA 17
Syllabus

SL NO	LIST OF PROGRAMS
	PART - A
1	All roots of quadratic equation
2	First biggest and second biggest among n numbers
3	Prime numbers between M and N (M<=N)
4	Fibonacci series between M and N
5	Binary to Octal conversion
6	Sorting an unsorted array
7	Deleting the repeated elements in an array
	PART – B
1	Any four String handling function using switch-case
2	Addition of two matrices
3	Multiplication of two matrices
4	Comparison of [A] and [A]T
5	Sum of upper triangular, lower triangular and diagonal elements of a square matrix
6	Binary and linear search in an array using function
7	Norm and trace of a matrix

Statements of Course Outcomes (COs)

By the end of the course, the student will be able to

CO-1	Implement the algorithms, identify the correct and efficient ways of solving problems
CO-2	Develop programs using the basic elements like control statements, Arrays and Strings
CO-3	Implement different Operations on arrays
CO-4	Learn programs that perform operations using strings
CO-5	Enable effective usage of functions using simple programs

DEPARTMENT OF COMPUTER SCIENCE
Data Structures Lab
Subject Code: 27
Syllabus

SL NO	LIST OF PROGRAMS
	Part – A
1	Implementation of stack
2	Evaluation of post fix expression
3	Implementation of queue
4	Implementation of circular queue using structures
5	Shell sort
	Part – B
1	Conversion of infix to postfix
2	Implementation of stack using linked list
3	Implementation of queue using linked list
4	Binary tree traversals
5	Quick sort
6	Heap sort
7	Tree sort

Statements of Course Outcomes (COs)

By the end of the course, the student will be able to

CO-1	Implementations of stack and queue menu driven program
CO-2	Learn the applications of data structures
CO-3	Implementations of Infix to Postfix Transformation and its evaluation program.
CO-4	Implementation of different operations on linked list
CO-5	Implement appropriate sorting/searching technique for given problem.

DEPARTMENT OF COMPUTER SCIENCE
C++PROGRAMMING LAB
Subject Code: BCA 36
Syllabus

SL NO	LIST OF PROGRAMS
	Part A
1	Write a c++ program to find the result of a student using class concept
2	Define a class employee having data members name, basic salary, net salary with the member function getdata() , showdata(). Calculate the net salary assuming appropriate % for all allowance and deductions using class concept
3	Define a class to represent product details it includes data member pname, pcode, price, pquality include member function a) to get product detail b) to display the product details and total price using class concept
4	Write a c++ program to print Fibonacci series using constructor
5	Write a c++ program to find biggest of two numbers and three numbers using function overloading
6	Write a c++ program to calculate area of triangle, rectangle and circle using function overloading
7	Write a c++ program to calculate family income using friend function
	Part B
1	Write a c++ program to add two complex numbers using operator overloading
2	Write a c++ program to concatenate two string using operator overloading
3	Write a c++ program to implement multiple inheritance by creating classes- father, mother and son
4	Write a c++ program to swap two numbers using function template
5	Write a c++ program to sort an array using function template
6	Write a c++ program to define a class Bank Account including the following class members. DataMembers:,cust name, accno, balance. Member Functions: a) getdata(custname,accno,balance). b) display(accno). c) deposit(acno,amt). d) withdrow(accno,amt) updationaftern checking the balance. e) To display name & balance of all the records
7	Write a c++ program to implement multilevel inheritance by creating classes: College—>name_id, location,dept Student—>name ,reg_no, course, age DOB—>date, month, year, place

Statements of Course Outcomes (COs)
By the end of the course, the student will be able to

CO-1	Create simple programs using classes and objects in C++.
CO-2	Implement dynamic memory management techniques using pointers, constructors, destructors, etc
CO-3	Learn the concept of function overloading, operator overloading, virtual functions and polymorphism.
CO-4	Classify inheritance with the understanding of code reusability
CO-5	Understand generic programming and templates,

DEPARTMENT OF COMPUTER SCIENCE
SQL LAB
Subject Code: BCA 37
Syllabus

SL NO	LIST OF PROGRAMS
I	Use the default emp and dept table to write SQL statements for the following queries 1. Find the employee details in ascending order of their name and descending order of their salary 2. Find the name of all managers and number of employees under them 3. Find the details of all employees in the research department 4. Find the minimum, maximum and average salary of each department 5. Find department name having least number of employees 6. Find the department name having highest annual payroll 7. Add an employee under the manager smith 8. Find the employees who are not getting commission
II	Create tables as below Student(name string, regno string primary key, dob date, doj date ,course string foreign key) Markscard(regno foreign key, sem string, sub1 number, sub2 number, sub3 number, tot number, avge number, result string) Write SQL statements for the following queries. 1. List the names of students studying in BCA course in the order of their joining 2. Find the name of student who has scored highest marks in every sem of each course 3. Count the number of students in each course 4. Find the course having second highest number of students 5. Find the course having least students in I semester 6. Display the details of student 'xxx' in every semester. 7. Find the names of al juniors of 'yyy' in course 'c1' 8. Find all students studying with 'xxx' and elder to him (compare DOB)
III	Dept(deptno integer pkey, dname string not null, loc string not null) Emp(eno integer pkey, ename string, deptnofkey, design string not null, bsal number>0) Salary(enofkey, da, hra,gross,it,pf,net,comm) DESGN ARE manager,clerk,salesmanComm=5% of basic if design=salesman otherwise null Da=15% bsalhra = 7% of bsal gross=bsal+da+hra It =0 if gross = 10% of gross if gross between 15000 and 30000 =20% of gross if gross between 30000 and 50000 = 30% of gross otherwise pf = 10% of gross or 1000 whichever is less Write SQL statements for 1. Count the number of employees in every designation 2. List the employees of every department in descending order of their net salary 3. List the name and salary of highest salary payer in every department 4. List the name of employee paying highest IT 5. List the total IT paid by each department 6. List the departments in every location 7. Raise the basic salary by 10% for the managers of every department. 8. Find the number of employees having at least 10 years of experience in every department.
IV	Create tables as below Employee(eno, ename,street,city) Company(cno,cname,city) Works(eno,cno,sal) Manages(mno,eno) Write SQL statements for the following queries 1. Find the name of all employee working in the city in which they live 2. Find the company having most employee 3. Count the number of employees under each manager. 4. Find the company having second highest payroll 5. Find employee drawing more salary than his manager in every company

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	6. Raise the salary of every manager by 25% 7. Find name of employees who are not having managers 8. Find average, highest and lowest salary of every company

Statements of Course Outcomes (COs)

By the end of the course, the student will be able to

CO-1	Learn creation and design of relational database systems by designing databases.
CO-2	Use an SQL interface of a multi-user relational DBMS package to create, populate, maintain, and query a database.
CO-3	Formulate query using SQL to solve data update problems.
CO-4	Learn aggregate functions to solve queries

DEPARTMENT OF COMPUTER SCIENCE
JAVA PROGRAMMING LAB
Subject Code: BCA 46
Syllabus

SL NO	LIST OF PROGRAMS
	Part A
1	Write a Java program to generate first n odd numbers and pick and display prime numbers among them. Read value for n as command line argument.
2	Write a Java program to create a vector, add elements at the end, at specified location onto the vector and display the elements. Write an option driven program using switch…case.
3	Write a java program to find area of geometric figures (at least 3) using method overloading. Write a Java program to find the circumference and area of the circle using interface.
4	Write a java program to perform matrix addition and multiplication using case statement
5	Write a java program to accept student information using array of objects and constructor initialisation.
6	Write a java program to accept student, employee information to perform relevant computation using hierarchical inheritance.
7	
	Part B
8	Write a java program to implement static and dynamic stack using interface using abstract class.
9	Write a java program to implement constructor overloading by passing different number of parameter of different types.
10	Define a package to contain the class sort to contain methods for various sorting techniques with time complexity (at least 3) Use this package to sort the list
11	Write a Java program to generate odd, even and Fibonacci numbers simultaneously using the concept of multi-threading.
12	Write a program to implement an applet by passing parameter to HTML
13	Write an applet program to display human face 14. Create an applet to display concentric n circles, input value for n.

Statements of Course Outcomes (COs)

By the end of the course, the student will be able to

CO-1	Write Java application programs using OOP principles and program structuring
CO-2	Demonstrate the concepts of polymorphism and inheritance
CO-3	Understand fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, etc
CO-4	Learn the Internet Programming, using Java Applets

DEPARTMENT OF COMPUTER SCIENCE

COMPUTER GRAPHICS PROGRAMMING LAB
Subject Code: BCA 47
Syllabus

SL NO	LIST OF PROGRAMS
	PART A
1	Write a program to draw borders at the four corners of the screen.
2	Write a program Write a program to implement DDA line drawing algorithm
3	Write a program to implement Bresenham's line drawing algorithm
4	Write a program to implement Bresenham's line drawing algorithm for $|m|<1$
5	Write a program to implement Parallel line algorithm
6	Write a program to implement Midpoint circle algorithm
	Write a program to implement Ellipse generating algorithm
	PART B
7	Write a program to continuously rotate an object about origin. Small angles to be used for successive rotation.
8	Write a program that applies any specifies sequence of transformations to a displayed object. The program is to be designed so that a user selects the transformation sequence and associated parameter from displayed menus, and the composite transformation is then calculated and used to transform the object. Display the original and transformed objects in different colours or different fill patterns.
9	Write a program to demonstrate clipping by defining world and viewing coordinates
10	Write a program to implement Cohen Sutherland line clipping algorithm
11	Write a program to implement Sutherland - Hodgeman polygon clipping algorithm

Statements of Course Outcomes (COs)

By the end of the course, the student will be able to

CO-1	Demonstrate the overview of graphics system and make use of various drawing algorithms of output primitives
CO-2	Experiment with the geometric transformations and different algorithms for viewing and clipping in two dimensional graphics related problems.
CO-3	Learn the methods to represent two dimensional objects in computer graphics
CO-4	Learn different colour models that plays important role in computer graphics

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DEPARTMENT OF COMPUTER SCIENCE

WEB PROGRAMMING LAB WITH J2EE CONCEPTS AND PHP
Subject Code: BCA 56
Syllabus

SL NO	LIST OF PROGRAMS
	PART A
1	Create a webpage using html to display college information with appropriate images and list of departments.
2	Create a webpage using html to display the below mentioned table (use appropriate colors):

Name		Place
Rama	R	Bhadravathi
Kumar	B	Shimoga
Rajesh	S	Thirthahalli
Ramakrishna	RK	Bhadravathi

SL NO	LIST OF PROGRAMS
3	Create a webpage with two images which alternately changes on mouse over using CSS.
4	Create a webpage to display system date in the given format: Ex: 01 January 2016
5	Create a webpage to demonstrate the use of external Cascading Style Sheets
6	Create a webpage to demonstrate the use of span and div tags in DHTML.
7	Create a webpage with two textboxes and command buttons to perform arithmetic operations and display the result in appropriate dialog boxes using JavaScript.
8	Create a webpage to convert a given text from uppercase to lowercase using JavaScript.
	PART B
9	Write a JSP application to read the details of a student and store the same on to the MS Access database.
10	Write a JSP application to evaluate the salary details of an employee and store the same in the MS Access database table.
11	Write a multi-layered JSP program to evaluate the result of a student. Consider student name, register number, marks obtained in 5 subjects as input and read them by writing a proper user interface JSP. Evaluate the total marks, percentage marks and grade by writing a process JSP. While evaluating the grade verify whether the student has cleared all the papers. Display the output with proper marks list format by using <TABLE> tag. College NameMarks List Name of the Student : Register Number :

Subjects	Max. Marks	Min. Marks	Marks Obtained
1. Subject1	100	40	--
2. Subject2	100	40	--
3. Subject3	100	40	--
4. Subject4	100	40	--
5. Subject5	100	40	--
Total Marks	500	200	--
Percentage Marks:	-- %		
Grade:	----		

SL NO	LIST OF PROGRAMS
12	Write a multi-layered JSP application to accept and store student information. Accept student name, register number, course, combination, semester, marks obtained in five subjects as input through a proper user interface page. Design course, combination and semester as combo boxes. Store the accepted details in the MS Access table.
13	Write a multi-layered JSP application to read and store employee information. Read employee name, employee identification number, Department, Designation, Basic Salary, TA, DA, HRA, PF, LIC (in percentage) as input through a proper user interface page. Also calculate TA Amount, DA Amount, HRA Amount, PF Amount, LIC Amount, Total Allowances, Total Deductions, Gross Salary and Net Salary components of the employee. Along with the employee information store the salary details in the MS Access table.
14	Write a program to connect the mysql-database and display connection status using PHP.

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15	Write a program to upload and display an image using PHP.

Statements of Course Outcomes (COs)

By the end of the course, the student will be able to

CO-1	Create a basic website using HTML and Cascading Style Sheets
CO-2	Design and implement server side programs using servlets, JDBC and JSP
CO-3	Design and implement simple web page in PHP, and to present data in XML format
CO-4	Build dynamic web pages using JavaScript (Client side programming).

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ADVANCED JAVA PROGRAMMING LAB
Subject Code: BCA 57
Syllabus

SL NO	LIST OF PROGRAMS
	PART A
1	Write an Applet program to design a user interface to key-in the details of an employee.
2	Write an applet to add, remove, select an item in a list
3	Write a applet display select geometric figure from a list.
4	Write a program to implement mouse events
5	Write a program to implement keyboard events
6	Write a Java program (console) to store the typed text to a file.
7	Write a Java program to display the content of a file.
	Write a Java program to edit the content of a file
	PART B
1	Write a Java program with JDBC to store the details of a person on to an Oracle database table.
2	Write a Java program with JDBC to access and display the details of a person stored in an Oracle database table.
3	Write a Java program with JDBC to access and delete the details of a given person stored in an Oracle database table.
4	Write a Java GUI program to accept the details of an employee and store the same on to an Oracle database table.
5	Write a Java GUI program to access and display the details of a given employee stored in Oracle database table.

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| 6 | Write a Java program to design a simple Client and Server components. Pass simple text (static) from client to the server and a receipt acknowledgement (static) back to the client. |
| 7 | Write a Java program to demonstrate the use of generics. |

Statements of Course Outcomes (COs)

By the end of the course, the student will be able to

CO-1	Learn the Internet Programming using Java Applets
CO-2	Design and develop GUI applications using Abstract Windowing Toolkit (AWT), Swing and Event Handling.
CO-3	Learn to access database through Java programs, using Java Data Base Connectivity (JDBC)
CO-4	Learn the concepts of Swings and Files.

UNIX LAB
Subject Code: BCA 64
Syllabus

List of Programs
PART A
1. Write a shell script to count the number of characters in a given string.
2. Write a shell script program to perform all arithmetic operation on floating point
3. Write a shell script program to check whether the given no. is positive or negative.
4. Write a shell script program to find area of a square, rectangle, circle and triangle.
5. Write a shell script program to reverse a number.
6. Write a shell script program to find sum of digit of a no.
7. Write a shell script program to add, subtract, multiply the two given numbers passed as command ling arguments.
8. Write a shell script program to read data from command line argument and print 1st and 2nd command line argument and print how many no. of argument user has given
PART B
1. Write a shell script program to read pattern and file name and search whether the given pattern is present in a file or not, with suitable validation.
2. Write a shell script program to check whether the given file is present in a directory and check what are all the permission given for the owner.
3. Write a shell script program to read filename from command line argument and check whether the file is regular file or directory or by both.
4. Write a shell script program to read 2 filename and check which 1 is newer and which 1 is older.
5. Write a shell script program to find the number of directory files and ordinary files in the current directory.
6. Write a shell script program to perform the following any 1 operation based on your own

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a. choice. b. show first 5 line data c. show last 3 line data d. sort the data e. find out word count

7. Write a shell script program to perform the following any 1 operation on your own choice. a. list the file b. process the user c. today's date d. user of the system e. exit

Statements of Course Outcomes (COs)

By the end of the course, the student will be able to

CO-1	Understand and make effective use of linux utilities and shell scripting language to solve problems
CO-2	Write Regular expressions for pattern matching and apply them to various filters for a specific task
CO-3	Modify built-in shell variables and create and use user-defined shell variables.
CO-4	Create structured shell programming which accept and use positional parameters and exported variables.