



VIJAYANAGARA SRI KRISHNADEVARAYA UNIVERSITY
BELLARY

Syllabus For

BACHELOR OF SCIENCE

(B.Sc., Computer Science)

(New syllabus with effect from 2016-2017)

BACHELOR OF COMPUTER SCIENCE (B.Sc) SYLLABUS

(With effect from 2016-17 and onwards)

Semester No.	Course No.	Subject Name
I (w.e.f. from 2014-15 onwards)	CS1T	Computer Fundamentals and Programming in 'C'
	CS1P	C Programming Lab
II (w.e.f. from 2014-15 onwards)	CS2T	Advance 'C' Programming & office automation
	CS2P	Advance 'C' Programming Lab
III (w.e.f. from 2015-16 onwards)	CS3T	OOPs using C++
	CS3P	C++ Lab
IV (w.e.f. from 2015-16 onwards)	CS4T	Data structures
	CS4P	Data structures Lab using c/c++
V (w.e.f. from 2016-17 onwards)	CS5T1	DBMS
	CS5P1	DBMS Lab
	CS5T2	Visual Basic Programming
	CS5P2	VB Programming Lab
VI (w.e.f. from 2016-17 onwards)	CS6T1	Computer Graphics
	CS6P1	Computer Graphics lab
	CS6T2	Java Programming
	CS6P2	Java Programming lab

B.Sc. I Semester
(w.e.f from 2016-2017 onwards)

CS1T: COMPUTER FUNDAMENTALS AND PROGRAMMING IN C

Teaching: 4 hrs./week
Total Hours : 56Hrs

Max. Marks: 70
I. A. Marks: 30

I. COMPUTER FUNDAMENTALS

Introduction to Computers: Evolution of Computers, Generation of Computers, Classification of Computers Analog Digital and Hybrid Computers, Classification of Computers according to size, Super Computers, Mainframe Computers, Personal Computers (Different Types) and Terminals (Different Types), Characteristics of Computers, Block Diagram of a Digital Computer. **8 Hrs**

Introduction to Number system and codes: Different number systems and their conversions (Decimal, Binary, Octal, and Hexadecimal), 1's complement and 2's complement, Floating Point numbers, ASCII Code **6 Hrs**

Boolean algebra and Gate networks: Fundamental concepts of Boolean algebra, Inverter gates, AND gate, OR gate, NAND gate, NOR gate, X-OR gate, X-NOR gate, The universal property of NAND gate and NOR gate, Basic laws of Boolean algebra, De Morgan's theorems, Simplification of Boolean expression. **8 Hrs**

Introduction to Programming Concepts: Types of Programming Languages, software, Classification of software, Application software and System Software, Structured Programming, Algorithms and Flowcharts with Examples. **6 Hrs**

II. PROGRAMMING IN C

C Programming Concepts: Algorithm & flowchart History of C, Structure of a C program. The C character set, Constants, Variables and keywords, Types of constants and variables. Type declaration and arithmetic instructions, Integer and float conversions. Type conversion in assignment, Operators in C, Hierarchy of operators, control instructions, Input-Output statements in C (Formatted and Unformatted). **12 Hrs**

Control Structures: Decision control structures, Logical operators, conditional operator and relational operators. Loop control structures –while, do-while, for loop, Break statement, Continue statement, switch-case control structure, goto statement. **10 Hrs**

Arrays: One dimensional and multidimensional array, declaration, initialization and array manipulations, sorting (Bubble sort) Strings – Basic Concepts, Library Functions. **6 Hrs**

Reference:

1. Bartee. Thomas, Digital Computer Fundamentals, 6th edition, 1995. TMH
2. Mano, Morris M. Computer System Architecture 1986. Prentice Hall India Limited.
3. Rajaraman, V. Fundamentals of Computers, 2nd Edition. Prentice Hall India Limited
4. Kanetkar, Yashavant, Let Us C, 4th Edition, BPB Publications
5. Balagurusamy, E Programming in ANSI C 2nd Edition. Tata McGraw - Hill

CS1P: C Programming Lab

Practical: 6 hrs./week

Max. Marks: 40

I. A. Marks: 10

1. Write a program to find simple & compound Interest.
2. Write a program to find the sum & average of three numbers.
3. Write a program to voter is eligible or not.
4. Write a program to find largest of three numbers.
5. Write a program to whether a given number is prime or not.
6. Write a program to find the roots of the quadratic equation using switch statement.
7. Write a program to perform arithmetic operations of the two numbers using switch statement.
8. Write a program to find the sum of the individual digit until a single digit.
9. Write a program to find frequency of presence of a digit in a given number.
10. Write a program to find count the number of vowels and consonants in a given string.
11. Write a program to find the series $1+x+x^2+x^3+\dots+x^n$.
12. Write a program to find the series $1+1/3!+1/5!+\dots+1/n!$.
13. Write a program to generate & print the Fibonacci series.
14. Write a program to find the exponent series.
15. Write a program to find the sine series.
16. Write a program to find the cosine series.
17. Write a program to find a string whether it is palindrome or not.
18. Write a program to find a character is alphabetic or numeric or special character.
19. Write a program to sort the number in ascending order.
20. Write a program to find second largest & second smallest of given number.
21. Write a program to find the sum & subtract of two given matrix.
22. Write a program to find the multiplication of two matrix.
23. Write a program to find the trace of a matrix.
24. Write a program to find the norm of a matrix.
25. Write a program to find sum of each row & sum of each column of the given matrix.

B.Sc. II Semester
(w.e.f from 2016-2017 onwards)
CS2T: ADVANCE 'C' PROGRAMMING & OFFICE AUTOMATION

Teaching: 4 hrs./week
Total Hours : 56Hrs

Max. Marks: 70
I. A. Marks: 30

ADVANCE 'C' FEATURES:

Functions: Definition, function definition and prototyping, types of functions, type of arguments, recursion, passing arrays to functions, storage class in C-automatic, register, external and static variables. **8 Hrs**

Structures and Unions: Definition, declaration, accessing structure elements, Array of structure in a structure, Pointers and structures, Unions – definition, declaration, accessing union elements, typedef, enum Bit fields. **8 Hrs**

Pointers: Definition, notation, pointers and arrays, array of pointers and functions – call by value and call by reference, Pointers to pointers. **6 Hrs**

Files: File opening modes, creating a data file, processing a data file. **4 Hrs**

C Preprocessor: Types of C preprocessor directives, Macros, File Inclusion. **2 Hrs**

OFFICE AUTOMATION:

Word processing: Office activities and their software requirement , working with MS Word; Menus & Commands; Toolbars & Buttons; Shortcut Menus, Wizards & Templates; Creating a New Document; Different Page Views and layouts; Applying various Text Enhancements; Working with – Styles, Text Attributes; Paragraph and Page Formatting; Text Editing using various features ; Bullets, Numbering, Auto formatting, Printing & various print options, Spell Check, Thesaurus, Find & Replace; Headers & Footers ; Inserting – Page Numbers, Pictures, Files, Auto texts, Symbols etc.; Working with Columns, Tabs & Indents; Creation & Working with Tables including conversion to and from text; Margins & Space management in Document; Adding References and Graphics; Mail Merge, Envelops & Mailing Labels. Headers and footers. Templates, wizards and graphical features. **14 Hrs**

Spread Sheets: Introduction to spread sheet & Excel, working in Excel, concepts of Workbook & Worksheets; Using Wizards; Various Data Types; Using different features with Data, Cell and Texts; Inserting, Removing & Resizing of Columns & Rows; Working with Data & Ranges; Different Views of Worksheets; Column Freezing, Labels, Hiding, Splitting etc.; Using different features with Data and Text; Use of Formulas, Calculations & Functions; Cell Formatting including Borders & Shading; Working with Different Chart Types; Printing of Workbook & Worksheets with various options. **14 Hrs**

Reference:

1. Rajaraman, V.Fundamentals of Computers, 2nd Edition. Prentice Hall India Limited
2. Kanetkar, Yashavant, Let Us C, 4th Edition, BPB Publications
3. Balagurusamy, E Programming in ANSI C 2nd Edition. Tata McGraw - Hill
4. Sanjay Saxena, A first course in Computer, Vikas Publishing.

CS2P: Advance C Programming Lab

Practical: 6 hrs./week

Max. Marks : 40
I. A. Marks : 10

1. Write a program to find GCD & LCM of two number using functions.
2. Write a program to smallest of two numbers using functions
3. Write a program to arithmetic operations on two numbers using functions
4. Write a program to nth Fibonacci number using functions.
5. Write a program to find sum of 'n' natural number using function.
6. Write a program to find factorial number of a given number using functions
7. Write a program to find X^n where $n > 0$ using functions.
8. Write a program to find all prime numbers in the range of N & M using functions.
9. Write a program to find swap of two numbers using functions
10. Write a program to create a structure to hold the data of a point , input data for two points and finds the distance between them.
11. Write a program to create a structure employee information and sort them in alphabetic order of their names.
12. Write a program to create a structure to initialize students information.
13. Write a program to demonstrate on storage class.
14. Write a program to find the area and circumference of a circle using pointers.
15. Write a program to illustrate the pointer expression & pointer arithmetic.
16. Write a program to display all the elements of an array using pointers.
17. Write a program to show how a function can be made to return more than value.
18. Write a program to copy the contents of one string to another using pointers
19. Write a program to create a data file to store the data of a student.
20. Write a program to output the data from the file containing data of a student.
21. Write a program to find the size of a file.
22. Write a program to create data file and count the number of vowels & consonants in it.
23. Write a program to create data file and convert all lowercase alphabets to uppercase alphabets & vice verse
24. Write a program to macro substitute concept
25. Write a program to file inclusion concept.

B.Sc. III Semester
(w.e.f from 2016-2017 onwards)
CS3T: OOPS USING C++

Teaching: 4 hrs./week
Total Hours : 56Hrs

Max. Marks: 70
I. A. Marks: 30

I. OOPS using C++

Principles of Object-Oriented Programming: Object-Oriented Programming paradigm, basic concepts of object-oriented programming, benefits of OOPs, object-oriented languages, applications of OOP, C++ statements, class, structure of C++ program, creating the source file, compiling and linking. **10 Hrs**

C++ basics: Tokens, keywords, identifiers, data types, symbolic constants, type compatibility, variables, reference variables, operators in C++, Input/output, manipulators, type cast operator, expressions and implicit conversions, operator precedence, control structures. Function prototyping; call by reference, return by reference, inline functions, default argument, Const. arguments function overloading. **15 Hrs**

Classes and Objects: Specifying a class, defining member functions, making an outside function inline, nesting of member functions, private member function, arrays within a class, memory allocation for objects, static data member, static member functions, arrays of objects, object as function arguments. Constructors, parameterized constructors, multiple constructors with default arguments, dynamic initialization of objects, copy constructors, dynamic constructors, and destructors. **15 Hrs**

Friend functions, operator overloading, overloading operators using friends, manipulation of strings using operators, type conversions. Inheritance: single inheritance, multilevel inheritance, multiple inheritance, hierarchical inheritance, hybrid inheritance. **8 Hrs**

Compile time polymorphism, run time polymorphism, pointers to objects, this pointer, pointers to derived classes, virtual functions, and pure virtual functions. C++ stream classes, template functions, template class, and exception handling features of C++. **8 Hrs**

References

1. E. Balaguruswami, Object Oriented Programming with C++, Tata Mc. Graw Hill.
2. Robert Lofore, OOP in Turbo C++, Golgotia Publication.
3. B. A. Forouzon, R. F. Gilberge, Computer Science: A Structured Approach Using C++, Thomson Learning.
4. Bjarne Strastrup, "The C++ Programming Language", Addison-Wesley Publication Co.
5. Herbert Schildt, C++-The Complete Reference, TMH.

CS3P: C++ Lab

Practical: 6 hrs./week

Max. Marks: 40
I. A. Marks: 10

Assignments on OOP's with C++

- 1) Write a program to create a class for student having data members as name & age and member functions as getdata() & display().
- 2) Write a program to illustrate the use of scope resolution operation (::).
- 3) Write a program to illustrate the use of function overloading.
- 4) Write a program to illustrate the nesting of member functions.
- 5) Write a program to create arrays of objects for employee class.
- 6) Write a program to illustrate the use of a static data member.
- 7) Write a program to find mean value using friend function.
- 8) Write a program to create parameterized constructor.
- 9) Write a program to create copy constructor.
- 10) Write a program to illustrate the implementation of destructor.
- 11) Write a program to overload a unary minus operator.
- 12) Write a program to illustrate the Single Inheritance.
- 13) Write a program to illustrate the Multilevel Inheritance.
- 14) Write a program to demonstrate Multiple Inheritance.
- 15) Write a program to demonstrate Hybrid Inheritance.
- 16) Write a program to illustrate Arithmetic Operations on Pointers.
- 17) Write a program to illustrate Pointers to Objects.
- 18) Write a program to illustrate 'this' Pointer.
- 19) Write a program to illustrate Virtual Functions.
- 20) Write a program to input & output character using get() and put().
- 21) Write a program to demonstrate padding with fill().
- 22) Write a program to illustrate working with single file.
- 23) Write a program to illustrate Class Template.
- 24) Write a program to illustrate Function Template.
- 25) Write a program to illustrate Try Block Throwing an Exception.

B.Sc. IV Semester
(w.e.f from 2016-2017 onwards)
CS4T: DATA STRUCTURES

Teaching: 4 hrs./week
Total Hours : 56Hrs

Max. Marks: 70
I. A. Marks: 30

I. Data Structures:

Introduction: Basic terminologies, operations of data structure, classification of data structure,

Linear Data Structures-Arrays: Representation of arrays: single and multidimensional arrays, address calculation using column and row major ordering, operations on arrays, application of arrays **8 Hours**

Linear Data Structures – Lists: Singly linked list, circular linked lists, doubly linked lists, operations on linked list, applications of linked list: Sparse Matrix representation and polynomial representation **8 Hours**

Stacks: representation of stacks in memory using arrays and linked list, operations on stacks, Applications of stacks: Conversion from infix to postfix, Evaluation of postfix expression and tower of Hanoi problem. **8 Hours**

Queues: representation of queues in memory using arrays and linked list, circular queues, priority queue and d-queue, Applications of queues **8 Hours**

Nonlinear Data Structures-Trees: Tree Terminology, representation of Trees in memory using arrays and linked list , Binary tree traversal methods: Preorder, In-order, Post-ordered traversal. Types of binary trees: threaded binary trees, Binary search tree, B-trees, Applications of trees: **8 Hours**

Searching and Sorting: sequential search, binary search, bubble sort, selection sort, Insertion sort, heap sort, Radix sort, quick sort, Merge sort and efficiency of sorting and searching algorithms. **8 Hours**

Presentation Graphics: Introduction & area of use; Working with MS PowerPoint; Creating a New Presentation; Working with Presentation; Using Wizards; Slides & it's different views; Inserting, Deleting and Copying of Slides; Working with Notes, Handouts, Columns & Lists; Adding Graphics, Sounds and Movies to a Slide; Working with PowerPoint Objects; Designing & Presentation of a Slide Show; Printing Presentations, Notes, Handouts with print options. **8 Hours**

Reference Books:

1. Schaums outline series TMH publication.
2. Langsam Yedidyah, Augenstein Moshe J., Tenenbaum Aaron M., Data Structures Using C and C++, PHI/Pearson Education.
3. R. F. Gilberg and B. A. Forouzan, Data Structures-A Pseudocode Approach with C, Thomson Learning.
4. Trembley, J.P. And Sorenson P.G., An Introduction To Data Structures With Applications, Mcgrraw- Hill International Student Edition.
5. Samanta. D., Classic Data Structures, PHI.

CS4P: DATA STRUCTURES LAB USING C/C++

Practical: 6 hrs./week

Max. Marks: 40
I. A. Marks: 10

1. Write a program to Insert an elements in an array.
2. Write a program to delete an element in an array.
3. Write a program to search an element using linear search.
4. Write a program to search an element using binary search.
5. Write a program to demonstrate the working of single linked list of size n using an array. The operations to be supported
1) Insert 2) Delete 3) Display 4) exit
6. Write a program to demonstrate the working of doubly linked list of size n using an array. The operations to be supported
1) Insert 2) Delete 3) Display 4) exit
7. Write a program to demonstrate the working of circularly linked list of size n using an array. The operations to be supported
1) Insert 2) Delete 3) Display 4) exit
8. Write a program to demonstrate the working of Stack of size n using an array.
The operations to be supported
1) push 2) pop 3) Display 4) exit
9. Write a program to demonstrate the working of Queue of size n using an array.
The operations to be supported
1) Insert 2) Delete 3) Display 4) exit
10. Write a program to demonstrate the working of Circular Queue of size n using an array. The operations to be supported
1) Insert 2) Delete 3) Display 4) exit
11. Write a program to traverse a binary tree in pre-order
12. Write a program to traverse a binary tree in In-order
13. Write a program to traverse a binary tree in post-order
14. Write a program to convert general tree to binary tree
15. Write a program to convert infix to postfix expression
16. Write a Program to create a binary tree and also print the preorder values, inorder values, post order values.
17. Write a program to sort an elements in an array using Bubble sort
18. Write a program to sort an elements in an array using Insertion sort
19. Write a program to sort an elements in an array using Selection sort
20. Write a program to sort an elements in an array using Radix sort
21. Write a program to sort an elements in an array using Quick sort
22. Write a program to sort an elements in an array using Heap sort
23. Write a program to sort an elements in an array using Merge sort
24. Write a program to merge the two file.
25. Write a program to simulate the working of Towers of Hanoi problem for N disks ,
Print the total number of Moves taken by the program.

B.Sc. V Semester
(w.e.f from 2016-2017 onwards)
CS5T1: DBMS

Teaching: 4 hrs./week
Total Hours : 56Hrs

Max. Marks: 70
I. A. Marks: 30

I. DBMS

Database Concepts: Data base, Database Management System (DBMS), characteristics of database approach, advantages of using the DBMS approach, DBMS users, data models, schemas and instances, three-schema architecture and data independence, database languages and interfaces, database system environment. **10 Hrs**

The Entity Relationship Model: Entities, attributes, relationships, connectivity and cardinality, weak entities, composite entities, entity super types and subtypes, E-R diagrams, naming conventions, and design issues, specialization and generalization. **10 Hrs**

Relational Model: Concepts, constraints and relational database schemas, update operations, relational algebra operations, relational calculus, relational database design using ER to relational mapping. **10 Hrs**

Relational Query Language: SQL data definition and data types, specifying constraints, queries in SQL, insert, delete and update statements, nested queries, correlated queries, aggregated functions, database programming with function calls, cursors, triggers, procedures, PL/SQL programming. **16 Hrs**

Relational Database Design: Functional dependencies, normal forms- first, second, third and Boyce-Codd normal forms, relational database design algorithms, multivalued dependencies and fourth normal form. The database design and implementation process. **10 Hrs**

References:

1. Silberschatz, Korth and Sudharshan: Data base System Concepts, 6th Edition, Mc-GrawHill, 2010.
2. C.J. Date, A. Kannan, S. Swamynatham: An Introduction to Database Systems, 8th Edition, Pearson Education, 2006.
3. Dr S.Nandagopalan, Database management systems, sapna book house
4. Elmasri and Navathe: Fundamentals of Database Systems, 5th Edition, Pearson Education, 2007
5. Ragu Ramakrishnan and Johannes Gehrke: Database Management Systems, 3rd Edition, McGraw-Hill, 2003.

CS5P1: DBMS Lab

Practical: 3 hrs./week

Max. Marks: 40
I. A. Marks: 10

1. Create a table books (ISBN: int, BNAME: string, ANAME: string, COST: real)
 - Retrieve the ISBN, BNAME
2. Perform the queries based on aggregate functions.
3. Create a table Product (PID:integer , PNAME:string,MANF_Date: date)
 - Alter the table product by adding cost and update the cost.
4. Create a table Employee (ENO.: integer, FNAME: string, LNAME:string, GENDER:char,ADR:string,SALARY:real, DNO:int,BDATE:date)
 - Retrieve the employee name and address whose salary=25000
 - Retrieve the employee number, First name who are female employees
 - Retrieve the employee number, Name, Address who are working for department number either 3 or 4.
 - Retrieve the employee names that are born on 01-01-1995.
5. Consider the following Student-Faculty database given below:

STUDENT(SNUM:integer,SNAME:string,

MAJOR:string,LEVEL:string,AGE:integer)

CLASS (NAME: String, MEETS_AT: string, ROOM: string, FID: integer)

ENROLLED (SNUM: integer, CNAME: string)

FACULTY (FID: integer, FNAME: string, DEPTID: integer)

- Find the names of all juniors (level='JR') who are enrolled in a class taught by Prof. Harshith.
- Find the names of all classes that either meet in room R128 or have five or more students enrolled.
- Find the names of all students who are enrolled in two classes that meet at the same time.
- Find the names of faculty members who teach in every room in which some classes is taught.
- Find the names of faculty members for whom the combined enrollment of the courses that they teach is less than five.

6. Consider the following Student Enrollment database given below.

STUDENT (REGNO: string, NAME: string, MAJOR: string, BDATE: date)

COURSE (COURSE#: int, CNAME: string, DEPT: string)

ENROLL(REGNO:string,COURSE#:int,SEM:int,MARKS:int)

BOOK_ADOPTION (COURSE#: int, SEM: int, ISBN: int)

TEXT (ISBN: int, BOOKTITLE: string, PUBLISHER: string, AUTHOR: string)

- Demonstrate how you add a new text book to the database and make this book be adopted by some department.
- Produce a list of text books (include Course #, Book-ISBN, Book-title) in the alphabetical order for courses offered by the 'CS' department that use more than two books.
- List any department that has all its adopted books published by a specific publisher.

7. Consider the book dealer database given below:

AUTHOR (AUTHORID: int, NAME: string, CITY: string, COUNTRY :string)

PUBLISHER (PUBLISHERID: int, NAME: string, CITY: string, COUNTRY: string)

CATALOG(BOOKID:int,TITLE:string,AUTHORID:int,PUBLISHERID:int,CATEGORYID:int,YEAR:int,PRICE:int)

CATEGORY (CATEGORYID: int, DESCRIPTION: string)

ORDER_DETAILS (ORDERNO: int, BOOKID: int, QUANTITY: int)

- Create the above tables by properly specifying the primary keys and the foreign keys.
- Enter at least five tuples for each relation.
- Give the details of the authors who have 2 or more books in the catalog and the price of the books is greater than the average price of the books in the catalog and the year of publication is after 2000.
- Find the author of the book which has maximum sales
- Demonstrate how you increase the price of books published by a specific publisher by 10%

8. Consider Bank-Customer database given below:

BRANCH (BRANCH-NAME: string, BRANCH-CITY: string, ASSETS: real)

ACCOUNT (ACCNO: int, BRANCH-NAME: string, BALANCE: real)

DEPOSITER (CUSTOMER-NAME: string, ACCNO: int)

**CUSTOMER (CUSTOMER-NAME: string, CUSTOMER-STREET: string,
CUSTOMER-**

CITY: string)

LOAN (LOAN-NUMBER: int, BRANCH-NAME: string, AMOUNT: real)

BORROWER (CUSTOMER-NAME: string, LOAN-NUMBER: int)

- Find all the customers who have at least two accounts at the main branch.
- Find all the customers who have an account at all the branches located in a specific city.
- Demonstrate how you delete all account tuples at every branch located in a specific city.

B.Sc. V Semester
(w.e.f from 2016-2017 onwards)
CS5P2: VISUAL BASIC PROGRAMMING

Teaching: 4 hrs./week
Total Hours : 56Hrs

Max. Marks: 70
I. A. Marks: 30

Introduction: Need of visual languages, integrated development environment (IDE), advantage of Visual Basic, characteristics and features of Visual Basic – IDE, Projects, user interface, objects oriented, visual development and event-driven programming, forms/graphic controls, data processing, sharing with windows and internet applications. **10 Hrs**

Visual Basic programming and tools: An introduction to Visual Basic programming, simple program construction, statements, input/outputs, comments, editor, subroutines, controls flow statements, objects and variants. **10 Hrs**

Designing user interface – elements of user interface, understanding forms, menus and toolbars, designing menus and toolbars, building dynamic forms, drag and drop operations, working with menus, customizing the toolbars. **10 Hrs**

Controls – textbox, combo box, scroll bar and slider control operations, generating timed events, drawing with Visual Basic using graphics controls, coordinate systems and graphic methods, manipulating colors and pixels with Visual Basic, working with ActiveX controls. **10 Hrs**

Menus: Creating a menu system, Creating and accessing pop-up menu, Modifying menus at runtime, adding menu items at run-time **8 Hrs**

Database Programming with Visual Basic – data access methods, creating, reading and writing text files, data controls, creating queries. Report generation. **8 Hrs**

References

1. David Schneider, Introduction to Programming using Visual Basic, PHI
2. Mohammed Azam, Programming with Visual Basic 6.0, Vikas Publications
3. Dietel & Dietel, Visual Basic Programming, Pearson Education.
4. David I. Schneider, An Introduction To Programming Using Visual Basic .Net®, PHI
5. D.S.Rajendra Prasad & Dr.M.A.Jayaram, Visual Basic 6.0 ,Sapna Book House

CS5P2: VB Lab

Teaching: 3 hrs./week

Max. Marks: 40

I. A. Marks: 10

1. VB Project to convert Fahrenheit to Celsius and vice versa.
2. VB Project to perform arithmetic functions.
3. VB Project to create digital clock using timer control.
4. VB Project to perform concatenation of two strings.
5. VB Project to find the number is prime number or not using For Statement.
6. VB Project to display different shapes using option buttons, command button & shape control.
7. VB Project to perform largest of three numbers.
8. VB Project to perform factorial of a given number.
9. VB Project to search a character in a given string.
10. VB Project for changing text styles & text colors using frames, option buttons, command buttons, text box & checkboxes.
11. VB Project to print Fibonacci series.
12. VB Project to change back color of Form using common dialog box.
13. VB Project to play audio file.
14. VB Project to animate an object.
15. VB Project to change the color of the form using horizontal scroll bars.
16. VB Project to draw the concentric circles.
17. VB Project to generate a password
18. VB Project to display picture using drive list , directory list and file list
19. VB Project to create following Menus and Sub menus

Size → Normal

Minimize

Maximize

Exit

20. VB Project to demonstrate the MDI Form
21. VB Project to store and maintain the employee details using data control
22. VB Project to display publisher details using data control.
23. VB Project to display student details using ADODC CONTROL
24. VB Project on Object Linking Environment.
25. VB Project to Save and Delete the Student record using a database.

B.Sc. VI Semester
(W.e.f from 2016-2017 onwards)
CS6T1: COMPUTER GRAPHICS

Teaching: 4 hrs./week
Total Hours : 56Hrs

Max. Marks: 70
I. A. Marks: 30

Introduction: Nature and types of computer graphics, features of computer graphics, applications. **8 Hrs**

Input and Output Hardware: Input devices, Display devices – storage type and refresh type display devices, random scan and raster scan monitors, Hard-Copy devices, Graphics software. **8 Hrs**

Output Characteristics: Computer Output models, display coordinate systems, aspect ratio, aliasing and anti-aliasing, limitations of raster scan. **8 Hrs**

Line Drawing Algorithms: DDA and Bresenham algorithms for line and circle, ellipse generating algorithms, Area filling algorithms – Flood Fill and Boundary Fill algorithms. **8 Hrs**

Two Dimensional viewing: Window – viewport relationship, Computer related coordinate systems, Window-to-viewport Transformation: 2D Transformations- Translation, Rotation, Scaling, Reflection, Shear, Matrix Representation and Homogenous Coordinates, Composite Transformations. **8 Hrs**

Clipping: Point Clipping, Line Clipping – Cohen Sutherland Algorithm, Mid-point Clipping, Polygon Clipping – Sutherland Hodgeman Algorithm, Text clipping. Color and Grayscale levels, Color lookup table **8 Hrs**

3D transformations: Translation, Rotation, Scaling, Rotation about an arbitrary axis, Reflection, Shear, 3D viewing- Parallel Projection, Perspective Projection. **8 Hrs**

References

1. N.Krishnamurthy, Introduction to Computer Graphics, Tata McGraw-Hill
2. Donald Heavn and M.Parline Baker, Computer Graphics-C Version, Pearson Education.
3. Foley, Vandam, Feiner, Huges, Computer Graphics: Principles & Practice, Pearson Education.
4. D.P. Mukherjee, Fundamentals of Computer Graphics and Multimedia, PHI.
5. Rogers, Procedural elements of Computer Graphics, Mc-Graw Hill.
6. Newman .W.M and Sproll.RF Principles of interactive Computer Graphics
7. Steven Harrington, Computer Graphics- A Programming Approach, McgrawHill International.

CS6P1: Computer Graphics Lab

Teaching: 3 hrs./week

Max. Marks: 40

I. A. Marks: 10

1. Write a program to draw a Triangle
2. Write a program to draw a Line
3. Write a program to draw a Circle
4. Write a program to draw a Rectangle.
5. Write a program draw a Line using DDA Algorithm
6. Write a program draw a Triangle using DDA Algorithm
7. Write a program draw a Quadrilateral using DDA Algorithm
8. Write a program draw a Line using Bresenham's Algorithm
9. Write a program draw and digitize point of the Line using DDA Algorithm
10. Write a program draw a circle using mid-point Circle Algorithm
11. Write a program to draw and digitize the points of a circle using Mid-point Algorithm
12. Write a Program Digitize the Line points
13. Write a program to draw a Line using Symmetrical Digital Differential Algorithm
14. Write a program for 2D transformation
15. Write a program for 3D transformation
16. Write a program draw a Curve using Bezier Technique
17. Write a program draw a Line and Clip it using Cohen-Sutherland Algorithm
18. Write a program to reflect a triangle to origin X, Y & Z axis
19. Write a program to Animate Hour hand and Minute hand
20. Write a program to Animate a circle on a Line
21. Write a Program to Simulate a clock.
22. Write a Program to Simulate a Spiral
23. Write a Program to Simulate a Wheel
24. Write a Program to Simulate a Bar Pendulum
25. Write a program to perform Transformation operation on a given Triangle

B.Sc. VI Semester
(W.e.f from 2016-2017 onwards)
CS6T2: JAVA PROGRAMMING

Teaching: 4 hrs./week
Total Hours : 56Hrs

Max. Marks: 70
I. A. Marks: 30

Basics of JAVA: using the tools in JDK, JAVA language- keywords, constants, variables and Data Types. Operators and Expressions, Decision making, branching and looping, labeled loop statement, jump statements: Break, Continue, and Return. Arrays and Strings, Overloading methods. **8 Hrs**

Classes and Objects: Methods defining a class, adding variables and methods, creating objects constructors, class inheritance, overriding methods, using super, multi level hierarchy, abstract and final classes, object class, packages and interfaces, Access protection, Extending interfaces, packages. **8 Hrs**

Java applets: windows, graphics and multimedia with Java, uses of Java applets in web page creation. **8 Hrs**

Multithreading Fundamentals: Java thread model: priorities, synchronization, messaging, thread class, Runnable interface, Interthread communication, suspending, resuming and stopping threads. **8 Hrs**

String handling: The string constructor, string length, special string operator character extraction, string comparison, searching string, modifying string, data conversion, changing the case of characters, string buffer. **8 Hrs**

Exception handling: Fundamental exception types, uncaught exceptions, throw, try - catch, final, built in exceptions, creating your own exceptions. **8 Hrs**

Networking: Networking basics, Java and the Internet Address, networking classes and interfaces, TCP/IP client Sockets, URL, URL connection. **4 Hrs**

Servlets: Background, Life Cycle, Java Servlet Development kit, Servlet API, Handling HTTP requests and responding, Using Cookies, Session tracking and security issues. **4 Hrs**

References:

1. C. Muthu, Programming with JAVA, Thomson Learning.
2. Patrick Naughton and Herbert Schild, the Complete Reference Java 2, Tata McGraw Hill.
3. Bruce Eckel, Thinking in Java, 3rd Edition, MindView, Inc.,
4. E Balaguruswamy, Introduction to Java Programming, PHI.

CS6P2: Java Programming Lab

Practical: 3 hrs. /week

Max. Marks: 40

I. A. Marks: 10

- 1) Write a program to find sum of two numbers.
- 2) Write a program to demonstrate the use of command line arguments.
- 3) Write a program to read data from keyboard.
- 4) Write a program to illustrate the Switch() statement.
- 5) Write a program to illustrate use of break and continue statements.
- 6) Write a program to find whether the given number is even or odd.
- 7) Write a program to find largest of three numbers.
- 8) Write a program to find factorial of a given number.
- 9) Write a program to illustrate application of Class and Object.
- 10) Write a program to illustrate application of Constructor.
- 11) Write a program to illustrate Methods Overloading.
- 12) Write a program to illustrate the use of Static Members.
- 13) Write a program to illustrate Nesting of Methods.
- 14) Write a program to illustrate application of Single Inheritance.
- 15) Write a program to sort a list of numbers using arrays.
- 16) Write a program to display sum of two matrixes.
- 17) Write a program to illustrate manipulation of strings.
- 18) Write a program to demonstrate implementing Interfaces.
- 19) Write a program to illustrate application of Packages.
- 20) Write a program to create threads using thread class.
- 21) Write a program to illustrate use of try and catch for exception handling.
- 22) Write a program to demonstrate the error "Divide by Zero" using Exception Handling.
- 23) Write a program to create applet to display a message.
- 24) Write a program to draw a human face using applets.
- 25) Write a program to copy characters from one file to another file.

MODEL QUESTION PAPER FOR SEMESTER EXAMINATION

B.Sc. CS1T: Title of the Paper

Time: 3 Hours

Max. Marks: 70

SECTION – A

Answer all the questions

Each question carries 2 marks (10x2 =20)

Q. 1.

- a)
- b)
- c)
- d)
- e)
- f)
- g)
- h)
- i)
- j)

SECTION – B

Answer any 4 questions

Each question carries 5 marks (4x5 =20)

Q. 2.

Q. 3.

Q. 4.

Q. 5.

Q. 6.

Q. 7.

SECTION – C

Answer any 3 questions

Each question carries 10 marks (3x10 =30)

Q. 8.

Q. 9.

Q. 10.

Q. 11.

Q. 12.

Practical: Minimum 20 practical assignment on the above topics shall be done. I & II Sem algorithm & Flowchart shall be written compulsory

Scheme of Practical Examinations:

1. Writing two programs	:	15 marks
2. Execution of one program	:	15 marks
3. Practical Record	:	05 marks
4. Viva Voce	:	05 marks

Total: 40 marks

Internal Assessment Test-I

Paper: _____

B.Sc. CS1T: Title of the Paper

Time: 1 Hours

Max. Marks: 30

SECTION – A

Answer all the questions

Each question carries 2 marks

5x2 =10

Q. 1.

- a)
- b)
- c)
- d)
- e)

SECTION – B

Answer any 2 questions

Each question carries 10 marks

2x10 =20

Q. 2.

- a)
- b)
- c)

