

TELANGANA STATE COUNCIL OF HIGHER EDUCATION

B.Sc./BA (Computer Applications) Course Structure

(Common Core Syllabus for All Universities of Telanagana State for the Students Admitted from the Academic Year: 2019-20 Batch Onwards)

CBCS Pattern in Semester System – 2019

Paper	Semester	Course Title	Hours / week		Credits
			Theory	Practical	
DSC – I	I	Programming in C	4	3	4 + 1 = 5
DSC – II	II	Programming in C++	4	3	4 + 1 = 5
DSC – III	III	Relational Data Base Management Systems	4	3	4 + 1 = 5
DSC – IV	IV	Multi Media Systems	4	3	4 + 1 = 5
DSC – V	V	Programming in Java	4	3	4 + 1 = 5
DSC – VI	VI	Web Technologies	4	3	4 + 1 = 5

Paper	Semester	Course Title	Hours / week		Credits
			Theory	Practical	
SEC – I	III	Python – I	2		2
SEC – II	III	Sci Lab - I	2		2
SEC – III	IV	Python – II	2		2
SEC – IV	IV	Sci Lab - II	2		2

Paper	Semester	Course Title	Hours / week		Credits
			Theory	Practical	
AECC	I	Fundamentals of Computer	2		2
AECC	II	Office Automation	2		2

Paper	Semester	Course Title	Hours / week		Credits
			Theory	Practical	
GENERAL ELECTIVE (GE)	IV	Information Technologies	4		4

PROJECT / OPTINAL

Paper	Semester	Course Title	Hours / week		Credits
			Theory	Practical	
PROJECT / OPTINAL	VI	Information Security and Cyber Laws	3	3	3 + 1 = 4

Programming in C (Semester – I)

Theory: 4 Hrs/Wk (4 Credits)

Practical: 3 Hrs/Wk (1 Credit)

Total Credits: 4+1= 5

Credits

UNIT – I

Computer Fundamentals: Introduction of Computers, Classification of Computers, Anatomy of a Computer, Memory Hierarchy, Introduction to OS, Operational Overview of a CPU.

Program Fundamentals: Generation and Classification of Programming Languages, Compiling, Interpreting, Loading, Linking of a Program, Developing Program, Software Development.

Algorithms: Definitions, Different Ways of Stating Algorithms (Step-form, Pseudo-code, Flowchart), Strategy for Designing Algorithms, Structured Programming Concept.

Basics of C: Overview of C, Developing Programs in C, Parts of Simple C Program, Structure of a C Program, Comments, Program Statements, C Tokens, Keywords, Identifiers, Data Types, Variables, Constants, Operators and Expressions, Expression Evaluation–precedence and associativity, Type Conversions.

UNIT – II

Input-Output: Non-formatted and Formatted Input and Output Functions, Escape Sequences,

Control Statements: Selection Statements – if, if-else, nested if, nested if-else, comma operator, conditional operator, switch; Iterative Statements–while, for, do-while; Special Control Statement–goto, break, continue, return, exit.

Arrays and Strings: One and Two Dimensional Arrays, Character Arrays, Functions from ctype.h, string.h.

UNIT – III

Functions: Concept of Function, Using Functions, Call-by-Value Vs Call-by-reference, Passing Arrays to Functions, Scope of Variables, Storage Classes, Inline Functions, and Recursion.

Pointers: Introduction, Address of Operator (&), Pointer, Uses of Pointers, Arrays and Pointers, Pointers and Strings, Dynamic Memory Allocation.

UNIT – IV

User-Defined Data Types: Declaring a Structure (Union) and its members, Initialization Structure (Union), Accessing members of a Structure (Union), Structures verses Unions, Enumeration Types.

Files: Introduction, Using Files, Working with Text Files and Binary Files, Other File Management Functions.

Text Book: Pradip Dey, Manas Ghosh, Computer Fundamentals and Programming in C (2e)

Reference Books:

1. Ivor Horton, Beginning C
2. Ashok Kamthane, Programming in C
3. Herbert Schildt, The Complete Reference C
4. Paul Deitel, Harvey Deitel, C How To Program
5. Byron S. Gottfried, Theory and Problems of Programming with C
6. Brian W. Kernighan, Dennis M. Ritchie, The C Programming Language
7. B. A. Forouzan, R. F. Gilberg, A Structured Programming Approach Using C

C – Lab

Practical: 3 Hrs/Wk (1 Credits)

1. Write a program to find the largest two numbers using if and conditional operator
2. Write a program to calculate arithmetic operations of two numbers using switch
3. Write a program to print the reverse of a given number
4. Write a program to print whether the given number is a prime or not.
5. Write a program to find largest and smallest elements in a given list of numbers.
6. Write a program to find the sum of two matrices.
7. Write a program to find the product of two matrices.
8. Write a program to print the reverse of a string.
9. Write a program to find the factorial of a positive integers using iteration and recursion
10. Write a program to find the GCD of two positive integers using iteration and recursion.
11. Write a program to demonstrate the call by value and the call by reference concepts.
12. Write a program to illustrate the use of Enumeration data type.
13. Write a program to illustrate the use of structure concept.
14. Write a program to illustrate the use of union concept.
15. Write a program to write content into a file and display contents of a file
16. Write a program to copy content of one file into another file and display the content of new file.

Note:

1. Write the Pseudo Code and draw Flow Chart for the above programs.
2. Recommended to use Open Source Software: GCC on Linux; DevC++ (or) CodeBlocks on Windows 10.

Programming in C++ (Semester – II)

Theory: 4 Hrs/Wk (4 Credits)

Practical: 3 Hrs/Wk (1 Credits)

Total Credits: 4+1= 5 Credits

UNIT – I

Introduction to C++: Applications, Example Programs, Tokens, Data Types, Operators, Expressions, Control Structures, Arrays, Strings, Pointers, Searching and Sorting Arrays.

Functions: Introduction, Prototype, Passing Data by Value, Reference Variables, Using Reference Variables as Parameters, Inline Functions, Default Arguments, Overloading Functions, Passing Arrays to Functions.

UNIT – II

Object Oriented Programming: Procedural Programming versus Object-Oriented Programming, Terminology, Benefits, OOP Languages, and OOP Applications.

Classes: Introduction, Defining an Instance of a Class, Why Have Private Members? Separating Class Specification from Implementation, Inline Member Functions, Constructors, Passing Arguments to Constructors, Destructors, Overloading Constructors, Private Member Functions, Arrays of Objects, Instance and Static Members, Friends of Classes, Member-wise Assignment, Copy Constructors, Operator Overloading.

UNIT – III

Inheritance: Introduction, Protected Members and Class Access, Base Class Access Specification, Constructors and Destructors in Base and Derived Classes, Redefining Base Class Functions, Polymorphism and Virtual Member Functions, Abstract Base Classes and Pure Virtual Functions, Multiple Inheritance.

C++ Streams: Stream Classes, Unformatted I/O Operations, Formatted I/O Operations.

UNIT – IV

Exceptions: Introduction, Throwing an Exception, Handling an Exception, Object-Oriented Exception Handling with Classes, Multiple Exceptions, Extracting Data from the Exception Class, Re-throwing an Exception.

Templates: Function Templates–Introduction, Function Templates with Multiple Type, Overloading with Function Templates, Class Templates – Introduction, Defining Objects of the Class Template, Class Templates and Inheritance.

Text Book: Tony Gaddis, Starting out with C++: from control structures through objects (7e)

Reference Books:

1. B. Lippman, C++ Primer
2. Bruce Eckel, Thinking in C++
3. K.R. Venugopal, Mastering C++
4. Herbert Schildt, C++: The Complete Reference
5. Bjarne Stroustrup, The C++ Programming Language
6. Sourav Sahay, Object Oriented Programming with C++

1. Write a program to print the sum of digits of a given number.
2. Write a program to check whether the given number is Armstrong or not.
3. Write a program to check whether the given string is Palindrome or not.
4. Write a program to read student name, roll no, marks and display the same using class and object.
5. Write a program to find area of a rectangle, circle, and square using class and object.
6. Write a program to implement inline function inside and outside of a class for
 - a. Finding the area of a square
 - b. Finding the area of a cube
7. Write a program to implement friend function and friend class.
8. Write a program to implement constructor and destructor with in a class.
9. Write a program to demonstrate hierarchical inheritance.
10. Write a program to demonstrate multiple inheritances.
11. Write a program to demonstrate the constructor overloading.
12. Write a program to demonstrate static polymorphism.
13. Write a program to demonstrate dynamic polymorphism.
14. Write a program to implement polymorphism using pure virtual functions.
15. Write a program to demonstrate the function templates and class templates.
16. Write a program to demonstrate exception handling using try, catch, and finally.

Note:

1. Write the Pseudo Code and draw Flow Chart for the above programs.
2. Recommended to use Open Source Software: GCC on Linux; DevC++ (or) CodeBlocks on Windows 10.

Relational Database Management Systems (Semester – III)

Theory: 4 Hrs/Wk (4 Credits)

Practical: 3 Hrs/Wk (1 Credit)

Total Credits: 4+1= 5 Credits

UNIT-I

Basic Concepts: Database Management System, File based system, Advantages of DBMS over file based system, Database Approach, Logical DBMS Architecture, Three level architecture of DBMS or logical DBMS architecture, Need for three level architecture, Physical DBMS Architecture, Database Administrator (DBA) Functions & Role, Data files indices and Data Dictionary, Types of Database.

Relational and ER Models: Data Models, Relational Model, Domains, Tuple and Relation, Super keys, Candidate keys, Primary keys and foreign key for the Relations, Relational Constraints, Domain Constraint, Key Constraint, Integrity Constraint, Update Operations and Dealing with Constraint Violations, Relational Operations, Entity Relationship (ER) Model, Entities, Attributes, Relationships, More about Entities and Relationships, Defining Relationship for College Database, E-R Diagram, Conversion of E-R Diagram to Relational Database.

UNIT-II

Database Integrity And Normalisation: Relational Database Integrity, The Keys, Referential Integrity, Entity Integrity, Redundancy and Associated Problems – Single Valued Dependencies – Normalisation, Rules of Data Normalization, The First Normal Form, The Second Normal Form, The Third Normal Form, Boyce Codd Normal Form, Attribute Preservation, Lossless, join Decomposition Dependency Preservation.

File Organization: Physical Database Design Issues, Storage of Database on Hard Disks, File Organization and Its Types, Heap files (Unordered files), Sequential File Organization – Indexed (Indexed Sequential) File Organization, Hashed File Organization, Types of Indexes, Index and Tree Structure.

UNIT-III

Structures Query Language (SQL): Meaning – SQL commands, Data Definition Language, Data Manipulation Language – Data Control Language, Transaction Control Language Queries using Order by, Where, Group by, Nested Queries. Joins – Views – Sequences, Indexes and Synonyms, Table Handling.

Advanced SQL: Accessing SQL from a Programming Language, Functions and Procedures, Triggers, Recursive Queries.

UNIT-IV

Transactions and Concurrency Management: Transactions, Concurrent Transactions, Locking Protocol, Serializable Schedules – Locks Two Phase Locking (2PL), Deadlock and its Prevention, Optimistic Concurrency Control.

Database Recovery and Security: Database Recovery meaning, Kinds of failures – Failure Controlling methods, Database errors, Backup & Recovery Techniques, Security & Integrity.

Text Book:

1. Database Systems: R.Elmasri& S.B. Navathe, Pearson.

References:

1. Introduction to Database Management System: ISRD Group, McGraw Hill.
2. Database Management System: R.Ramakrishnan&J.Gehrke, McGraw Hill.
3. Modern Database Management: J.A.Hoffer, V.Rames&H.Topi, Pearson.

Relational Database Management Systems – Lab

Practical: 3 Hrs/Wk (1 Credits)

1. Create a database having two tables with the specified fields, to computerize a library system of a University College.
LibraryBooks (Accession number, Title, Author, Department, PurchaseDate, Price),
IssuedBooks (Accession number, Borrower)
 - a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
 - b) Delete the record of book titled “Database System Concepts”.
 - c) Change the Department of the book titled “Discrete Maths” to “CS”.
 - d) List all books that belong to “CS” department.
 - e) List all books that belong to “CS” department and are written by author “Navathe”.
 - f) List all computer (Department=”CS”) that have been issued.
 - g) List all books which have a price less than 500 or purchased between “01/01/1999” and “01/01/2004”.

2. Create a database having three tables to store the details of students of Computer Department in your college.
Personal information about Student (College roll number, Name of student, Date of birth, Address, Marks(rounded off to whole number) in percentage at 10 + 2, Phone number)
Paper Details (Paper code, Name of the Paper)
Student’s Academic and Attendance details (College roll number, Paper Code, Attendance, Marks in home examination).
 - a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
 - b) Design a query that will return the records (from the second table) along with the name of student from the first table, related to students who have more than 75% attendance and more than 60% marks in paper2.
 - c) List all students who live in “Warangal” and have marks greater than 60 in paper1.
 - d) Find the total attendance and total marks obtained by each student.
 - e) List the name of student who has got the highest marks in paper2.

3. Create the following tables and answer the queries given below:
Customer (CustID, email, Name, Phone, ReferrerID)
Bicycle (BicycleID, DatePurchased, Color, CustID, ModelNo)
BicycleModel(ModelNo, Manufacturer, Style) Service
(StartDate, BicycleID, EndDate)
 - a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
 - b) List all the customers who have the bicycles manufactured by manufacturer “Honda”.
 - c) List the bicycles purchased by the customers who have been referred by Customer “C1”.
 - d) List the manufacturer of red colored bicycles.
 - e) List the models of the bicycles given for service.

4. Create the following tables, enter at least 5 records in each table and answer the queries given below.

Employee (Person_Name, Street, City)

Works (Person_Name, Company_Name, Salary)

Company (Company_Name, City)

Manages (Person_Name, Manager_Name)

- a) Identify primary and foreign keys.
 - b) Alter table employee, add a column “email” of type varchar(20).
 - c) Find the name of all managers who work for both Samba Bank and NCB Bank.
 - d) Find the names, street address and cities of residence and salary of all employees who work for “Samba Bank” and earn more than \$10,000.
 - e) Find the names of all employees who live in the same city as the company for which they work.
 - f) Find the highest salary, lowest salary and average salary paid by each company.
 - g) Find the sum of salary and number of employees in each company.
 - h) Find the name of the company that pays highest salary.
5. Create the following tables, enter at least 5 records in each table and answer the queries given below.

Suppliers (SNo, Sname, Status, SCity)

Parts (PNo, Pname, Colour, Weight, City)

Project (JNo, Jname, Jcity)

Shipment (Sno, Pno, Jno, Qunatity)

- a) Identify primary and foreign keys.
 - b) Get supplier numbers for suppliers in Paris with status>20.
 - c) Get suppliers details for suppliers who supply part P2. Display the supplier list in increasing order of supplier numbers.
 - d) Get suppliers names for suppliers who do not supply part P2.
 - e) For each shipment get full shipment details, including total shipment weights.
 - f) Get all the shipments where the quantity is in the range 300 to 750 inclusive.
 - g) Get part nos. for parts that either weigh more than 16 pounds or are supplied by suppliers S2, or both.
 - h) Get the names of cities that store more than five red parts.
 - i) Get full details of parts supplied by a supplier in Hyderabad.
 - j) Get part numbers for part supplied by a supplier in Warangal to a project in Chennai.
 - k) Get the total number of project supplied by a supplier (say, S1).
 - l) Get the total quantity of a part (say, P1) supplied by a supplier (say, S1).
6. Write a PL/SQL Program to demonstrate Procedure.
7. Write a PL/SQL Program to demonstrate Function.
8. Write a PL/SQL program to Handle Exceptions.
9. Write a PL/SQL Program to perform a set of DML Operations.
10. Create a View using PL/SQL program.
11. Write a PL/SQL Program on Statement Level Trigger.
12. Write a PL/SQL Program on Row Level Trigger.

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
- In the external lab examination student has to execute two programs with compilation and deployment steps are necessary.
- External Vice-Voce is compulsory.

Multi Media Systems (Semester – IV)

Theory: 4 Hrs/Wk (4 Credits)

Practical: 3 Hrs/Wk (1 Credit)

Total Credits: 4+1= 5 Credits

UNIT - I

Multimedia: Introduction, Definitions, Where to Use Multimedia- Multimedia in Business, Schools, Home, Public Places, Virtual Reality; Delivering Multimedia.

Text: Meaning, Fonts and Faces, Using Text in Multimedia, Computers and Text, Font Editing and Design Tools, Hypermedia and Hypertext.

Images: Before You Start to Create, Making Still Images, Color.

UNIT - II

Sound: The Power of Sound, Digital Audio, MIDI Audio, MIDI vs. Digital Audio, Multimedia System Sounds, Audio File Formats, Adding Sound to Your Multimedia Project.

Animation: The Power of Motion, Principles of Animation, Animation by Computer, Making Animations.

Video: Using Video, How Video Works and Is Displayed, Digital Video Containers, Obtaining Video Clips, Shooting and Editing Video.

UNIT - III

Making Multimedia: The Stages of a Multimedia Project, the Intangibles, Hardware, Software, Authoring Systems

Designing and producing: designing the structure, designing the user interface, a multimedia design case history, producing.

UNIT - IV

The Internet and Multimedia: Internet History, Internetworking, Multimedia on the Web.

Designing for the World Wide Web: Developing for the Web, Text for the Web, Images for the Web, Sound for the Web, Animation for the Web, Video for the Web.

Delivering: Testing, Preparing for Delivery, Delivering on CD-ROM, DVD and World Wide Web, Wrapping.

Text Book:

1. Tay Vaughan, “Multimedia: Making it work”, TMH, Eighth edition.

References:

1. Ralf Steinmetz and KlaraNaharstedt, “Multimedia: Computing, Communications Applications”, Pearson.
2. Keyes, “Multimedia Handbook”, TMH.
3. K. Andleigh and K. Thakkar, “Multimedia System Design”, PHI.
4. Spoken Tutorial on “GIMP” as E-resource for Learning:-<http://spoken-tutorial.org>
5. Spoken Tutorial on “Blender” as E-resource for Learning:-<http://spoken-tutorial.org>

Example programs:

Practical exercises based on concepts listed in theory using Presentation tools in office automation tool/ GIMP/Blender / Audacity/ Animation Tools/ Image Editors/ Video Editors.

Implement the followings using Blender -

1. Create an animation using the tools panel and the properties panel to draw the following – Line, Pen, oval, circle, rectangle, square, pencil,brush, lasso tool
2. Create an animation using text tool to set the font,size,color etc.
3. Create an animation using Free transform tool that should use followings-
 - Move Objects
 - Skew Objects
 - Stretch Objects
 - Rotate Objects
 - Stretch Objects while maintaining proportion
 - Rotate Objects after relocating the center dot
4. Create an animation using layers having following features-
 - Insert layer, Delete layer, guide layer, Mask layer.
5. Modify the document (changing background color etc.)Using the following tools
 - Eraser tool
 - Hand tool
 - Ink bottle tool
 - Zoom tool
 - Paint Bucket tool
 - Eyedropper tool
6. Create an animation for bus car race in which both starts from the same point and car wins the race.
7. Create an animation in which text Hello gets converted into GoodBye (using motion/shape tweening).
8. Create an animation having five images having fade-in fade-out effect.
9. Create an scene to show the sunrise (using multiple layers and motion tweening)
10. Create an animation to show the ripple effect.
11. Create an animation (using Shape tweening and shape hints) for transforming one shape into another.
12. Create an animation for bouncing ball (you may use motion guide layer).

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
- Faculty must take care about UG Standard Programs.
- In the external lab examination student has to execute two programs with compilation and deployment steps are necessary.
- External Vice-Voce is compulsory.

Programming in Java (Semester – V)

Theory: 4 Hrs/Wk (4 Credits)

Practical: 3 Hrs/Wk (1 Credit)

Total Credits: 4+1= 5 Credits

UNIT - I

Introduction: Java Essentials, JVM, Java Features, Creation and Execution of Programs, Data Types, Structure of Java Program, Type Casting, Conditional Statements, Loops, Classes, Objects, Class Declaration, Creating Objects.

UNIT - II

Method Declaration and Invocation, Method Overloading, Constructors – Parameterized Constructors, Constructor Overloading, Cleaning-up unused Objects. Class Variables & Method-static Keyword, this Keyword, One-Dimensional Arrays, Two-Dimensional Arrays, Command-Line Arguments, Inner Class.

Inheritance: Introduction, Types of Inheritance, extends Keyword, Examples, Method Overriding, super, final Keyword, Abstract classes, Interfaces, Abstract Classes Verses Interfaces.

Packages: Creating and Using Packages, Access Protection, Wrapper Classes, String Class, StringBuffer Class.

UNIT - III

Exception: Introduction, Types, Exception Handling Techniques, User-Defined Exception.

Multithreading: Introduction, Main Thread and Creation of New Threads –By Inheriting the Thread Class or Implementing the Runnable Interface, Thread Lifecycle, Thread Priority and Synchronization.

Input/Output: Introduction, java.io Package, File Streams, FileInputStream Class, FileOutputStream Class, Scanner Class, BufferedInputStream Class, BufferedOutputStream Class, RandomAccessFile Class.

UNIT - IV

Applets: Introduction, Example, Life Cycle, Applet Class, Common Methods Used in Displaying the Output (Graphics Class).

Event Handling: Introduction, Types of Events, Example.

AWT: Introduction, Components, Containers, Button, Label, Checkbox, Radio Buttons, Container Class, Layouts.

Swings: Introduction, Differences between Swing and AWT, JFrame, JApplet, JPanel, Components in Swings, Layout Managers, JTable.

Text Book:

1. Sachin Malhotra, SaurabhChoudhary, Programming in Java (2e)

References:

1. Bruce Eckel, Thinking in Java (4e)
2. Herbert Schildt, Java: The Complete Reference (9e)
3. Y. Daniel Liang, Introduction to Java Programming (10e)
4. Paul Deitel, Harvey Deitel, Java: How To Program (10e)
5. Cay S. Horstmann, Core Java Volume I –Fundamentals (10e)

Programming in Java – Lab

Practical: 3 Hrs/Wk (1 Credit)

1. Write a program to find the largest of n natural numbers.
2. Write a program to find whether a given number is prime or not.
3. Write a menu driven program for following:
 - a. Display a Fibonacci series
 - b. Compute Factorial of a number
4. Write a program to check whether a given number is odd or even.
5. Write a program to check whether a given string is palindrome or not.
6. Write a program to print the sum and product of digits of an Integer and reverse the Integer.
7. Write a program to create an array of 10 integers. Accept values from the user in that Array. Input another number from the user and find out how many numbers are equal to the number passed, how many are greater and how many are less than the number passed.
8. Write a program that will prompt the user for a list of 5 prices. Compute the average of the prices and find out all the prices that are higher than the calculated average.
9. Write a program in java to input N numbers in an array and print out the Armstrong numbers from the set.
10. Write a java program that computes the area of a circle, rectangle and a Cylinder using function overloading.
11. Write a Java program for the implementation of multiple inheritance using interfaces to calculate the area of a rectangle and triangle.
12. Write a java program to create a frame window in an Applet. Display your name, address and qualification in the frame window.
13. Write a java program to draw a line between two coordinates in a window.
14. Write a java program to display the following graphics in an applet window.
 - a. Rectangles
 - b. Circles
 - c. Ellipses
 - d. Arcs
 - e. Polygons
15. Write a program that reads two integer numbers for the variables a and b. If any other character except number (0-9) is entered then the error is caught by NumberFormatException object. After that ex.getMessage () prints the information about the error occurring causes.
16. Write a program for the following string operations:
 - a. Compare two strings
 - b. concatenate two strings
 - c. Compute length of a string

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
- Faculty must take care about UG Standard Programs.
- In the external lab examination student has to execute two programs with compilation and deployment steps are necessary.
- External Vice-Voce is compulsory.

Web Technologies (Semester – VI)

Theory: 4 Hrs/Wk (4 Credits)

Practical: 3 Hrs/Wk (1 Credit)

Total Credits: 4+1= 5 Credits

UNIT – I

Introduction To XHTML: Introduction, first HTML, Headings, Linking, Images, special characters and horizontal rules, Lists, Tables, Frames, Forms, internal linking, meta Elements. Cascading Style Sheets – Introduction, Inline Styles, Embedded Style Sheets, Conflicting Styles, Linking external sheets, position Elements, box model and text flow, media types, building a CSS drop-down menu, user style sheets, CSS3.

UNIT – II

Introduction To Java Scripting: Introduction, simple program, prompt dialog and alert boxes, memory concepts, operators(arithmetic, relational, assignment, increment and decrement, logical), decision making, control structures, if... else statement, while, counter-controlled repetitions, switch statement, do... while statement, break and continue statements.

UNIT – III

Functions: Program modules in JavaScript, programmer–defined functions, functions definition, scope rules, global functions, Recursion. Arrays- introduction, declaring and allocating arrays, references and reference parameters, passing arrays to functions. Multidimensional arrays, Events – registering event handling, event onload, onmouseover, onmouseout, onfocus, onblur, onsubmit, onreset, event bubbling, more events.

UNIT – IV

Java Script Objects: Introduction to object technology, Math Object, String Object, Date Object, Boolean and Number Object, document and window Objects, using cookies. XML - Introduction, XML Basics, Structuring Data, XML Namespaces, Document Type Definitions (DTDs), W3C XML Schema Documents, XML Vocabularies, Extensible Style sheet Language and XSL Transformations, Document Object Model (DOM).

Text Book:

1. Internet & World Wide Web: HOW TO PROGRAM- H. M. Deitel, P.J. Deitel, -Fourth Edition- Pearson edition.

Web Technologies – Lab

Practical: 3 Hrs/Wk (1 Credit)

1. Write a HTML program using basic text formatting tags, <p>,
, <pre>.
2. Write a HTML program by using text formatting tags.
3. Write a HTML program using presentational element tags , <i>, <strike>, <sup>, <sub>, <big>, <small>, <hr>
4. Write a HTML program using phrase element tags <blockquote>, <cite>, <abbr>, <acronym>, <kbd>, <address>
5. Write a HTML program using different list types.
6. Create a HTML page that displays ingredients and instructions to prepare a recipe.
7. Write a HTML program using grouping elements <div> and .
8. Write a HTML Menu page for Example cafe site.
9. Write a HTML program using images, audios, videos.
10. Write a HTML program to create your time table.
11. Write a HTML program to create a form using text inputs, password inputs, multiple line text input, buttons, check boxes, radio buttons, select boxes, file select boxes.
12. Write a HTML program to create frames and links between frames.
13. Write a HTML program to create different types of style sheets.
14. Write a HTML program to create CSS on links, lists, tables and generated content.
15. Write a HTML program to create your college web site using multi column layouts.
16. Write a HTML program to create your college web site using for mobile device.
17. Write a HTML program to create login form and verify username and password.
18. Write a JavaScript program to calculate area of rectangle using function.
19. Write a JavaScript program to wish good morning, good afternoon, good evening depending on the current time.
20. Write a JavaScript program using switch case?
21. Write a JavaScript program to print multiplication table of given number using loop.
22. Write a JavaScript programs using any 5 events.
23. Write a JavaScript program using JavaScript built in objects.
24. Write a JavaScript program to create registration Form with Validations.
25. Write a XML Program to represent Student Data using DTD.
26. Write a XML Program to represent Data using XML Schema Definition.

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
- Faculty must take care about UG Standard Programs.
- In the external lab examination student has to execute two programs with compilation and deployment steps are necessary.
- External Vice-Voce is compulsory.

Fundamental of Computers (Semester – I)

Theory: 2 Hrs/Wk

AECC

Total Credits: 2 Credits

UNIT-I

Introduction to Computers: what is a computer, characteristics of Computers, Generations of Computers, Classifications of Computers, Basic Computer organization, Applications of Computers. Input and Output Devices: Input devices, Output devices, Softcopy devices, Hard copy devices. Computer Memory and Processors: Introduction, Memory Hierarchy, Processor, Registers, Cache memory, primary memory, secondary storage devices, magnetic tapes, floppy disks, hard disks, optical drives, USB flash drivers, Memory cards, Mass storage devices, Basic processors architecture.

UNIT-II

Number System and Computer Codes: Binary number system, working with binary numbers, octal number system, hexadecimal number system, working with fractions, signed number representation in binary form, BCD code, other codes. Boolean algebra and logic gates: Boolean algebra, Venn diagrams, representation of Boolean functions, logic gates, logic diagrams and Boolean expressions using karnaugh map. Computer Software: Introduction to computer software, classification of computer software, system software, application software, firmware, middleware, acquiring computer software, design and implementation of correct, efficient and maintainable programs.

Text Book:

Reema Thareja, Fundamentals of Computers.

References:

1. V.Rajaraman, 6th Edition Fundamentals of Computers, Neeharika Adabala.
2. Anita Goel, Computer Fundamentals.

Theory: 2 Hrs/Wk

AECC

Total Credits: 2 Credits

UNIT-I

MS-Office: Introduction to MS-Office, MS-Word: Word Basics, working with formatted text, Shortcut keys, Formatting documents: Selecting text, Copying & moving data, Formatting characters, changing cases, Paragraph formatting, Indents, Drop Caps, Using format painter, Page formatting, Header & footer, Bullets & numbering, Tabs, Forming tables. Finding & replacing text, go to (F5) command, proofing text (Spell check, Auto correct), Reversing actions, Macros, Inserting pictures, Hyperlinks, Mail merging, Printing documents.

UNIT-II

Spreadsheets, workbooks, creating, saving & editing a workbook, Renaming sheet, cell entries (numbers, labels, and formulas), spell check, find and replace, Adding and deleting rows and columns Filling series, fill with drag, data sort, Formatting worksheet, Functions and its parts, Some useful Functions in excel (SUM, AVERAGE, COUNT, MAX, MIN, IF), Cell referencing (Relative, Absolute, Mixed), What-if analysis Introduction to charts: types of charts, creation of charts, printing a chart, printing worksheet.

Presentation Software, Uses, Presentation tips, components of slide, templates and wizards, using template, choosing an auto layout, using outlines, adding subheadings, editing text, formatting text, using master slide, adding slides, changing color scheme, changing background and shading, adding header and footer, adding clip arts and auto shapes. Various presentation, Working in slide sorter view (deleting, duplicating, rearranging slides), adding transition and animations to slide show, inserting music or sound on a slide, viewing slide show, Printing slides.

Text Book:

1. Computer Fundamentals – P.K. Sinha.
2. Introduction to Computers – N. Subramanian.
3. Introduction to Computers – Peter Norton Mcgraw Hill.
4. Fundamentals of Computers, by RemaTharaja, Oxford University Press India, 2014.
5. MS–Office _ BPB Publications.

Theory: 2 Hrs/Wk

SEC – I

Total Credits: 2 Credits

UNIT – I

Introduction to Python Programming: Introduction to Python Programming: How a Program Works, Using Python, Program Development Cycle, Input, Processing, and Output, Displaying Output with the Print Function, Comments, Variables, Reading Input from the Keyboard, Performing Calculations (Operators. Type conversions, Expressions), More about Data Output.

UNIT – II

Decision Structures and Boolean Logic: if, if-else, if-elif-else Statements, Nested Decision Structures, Comparing Strings, Logical Operators, Boolean Variables. Repetition Structures: Introduction, while loop, for loop, Calculating a Running Total, Input Validation Loops, Nested Loops.

Text Book:

Tony Gaddis, Starting Out With Python (3e)

References:

1. Kenneth A. Lambert, Fundamentals of Python
2. Clinton W. Brownley, Foundations for Analytics with Python
3. James Payne, Beginning Python using Python 2.6 and Python 3
4. Charles Dierach, Introduction to Computer Science using Python
5. Paul Gries, Practical Programming: An Introduction to Computer Science using Python 3

Theory: 2 Hrs/Wk

SEC - II

Total Credits: 2 Credits

UNIT – I

Introduction to Scilab – what is scilab, downloading & installing scilab, a quick taste of scilab. The Scilab Environment – manipulating the command line, working directory, comments, variables in memory, recording sessions, the scilab menu bar, demos.

Scalars & Vectors – introduction, initializing vectors in scilab, mathematical operations on vectors, relational operations on vectors, logical operations on vectors, built-in logical functions.

UNIT – II

Elementary mathematical functions mathematical functions on scalars, complex numbers, trigonometric functions.

Matrices – introduction, arithmetic operators for matrices, basic matrix processing. Polynomials – introduction, creating polynomials, basic polynomial commands.

Text Book:

1. Er. Hema Ramachandran, Dr.Achuthsankar S. Nair, Computer SCILAB–A Free Software to MATLAB

References:

1. Digite, Introduction to ScilabDigite, Optimization in ScilabScilab Enterprises, Scilab for Very Beginners Digite, Introduction to Discrete Probabilities with Scilab

Theory: 2 Hrs/Wk

SEC - III

Total Credits: 2 Credits

UNIT – I

Functions: Introduction, Defining and Calling a Void Function, Designing a Program to Use Functions, Local Variables, Passing Arguments to Functions, Global Variables and Global Constants, Value-Returning Functions

UNIT - II

Generating Random Numbers, Writing Our Own Value-Returning Functions, The math Module, Storing Functions in Modules. Recursion: Introduction, Problem Solving with Recursion, Examples of Recursive Algorithms. Strings: Basic String Operations, String Slicing, Testing, Searching, and Manipulating Strings.

Text Book:

Tony Gaddis, Starting Out With Python (3e)

References:

1. Kenneth A. Lambert, Fundamentals of Python
2. Clinton W. Brownley, Foundations for Analytics with Python
3. James Payne, Beginning Python using Python 2.6 and Python 3
4. Charles Dierach, Introduction to Computer Science using Python
5. Paul Gries, Practical Programming: An Introduction to Computer Science using Python 3.

Theory: 2 Hrs/Wk

SEC - IV

Total Credits: 2 Credits

UNIT – I

Programming in scilab – introduction, variables & variable names, assignment statements, arithmetic, relational, logical operators, input & output, flow control/branching/conditional statements, break and continue, handling matrices with loops.

Menus and Dialog Boxes – introduction, a simple menu example, scilab window with greetings menu added, executing submenus from command line, linking menus to scilab code from external files, entering data through dialog boxes

UNIT – II

Graphic Output – introduction, 2d plotting, function versions for graphic commands, 3d plotting, other graphic primitives.

String Handling Functions – symbolic processing in scilab, creation of a linear combination of arguments, string to ASCII conversion, creation of a string of blank characters, conversion of a string to uppercase and lowercase, string matching, string concatenation, reversing a string, replacement of a string by another, length of a string, type checking.

Text Book:

1. Er. Hema Ramachandran, Dr.Achuthsankar S. Nair, Computer SCILAB–A Free Software to MATLAB
2. Sci lab a Beginners Apporach by Anil kumar Varma

References:

1. Digite, Introduction to ScilabDigite, Optimization in ScilabScilab Enterprises, Scilab for Very Beginners Digite, Introduction to Discrete Probabilities with Scilab

Theory: 4 Hrs/Wk

General Elective

Total Credits: 4 Credits

UNIT – I

Computer Networks: Introduction, Connection Media, Data Transmission Mode, Data Multiplexing, Data Switching, Network Topologies, Types of Networks, Networking Devices, OSI Model.

The Internet: Internet Services, Types of Internet Connections, Internet Security.

Introduction to Emerging Computer Technologies: Distributed Networking, Peer-to-peer Computing, Grid Computing, Cloud Computing, Utility Computing, On-demand Computing, Wireless Network, Bluetooth, Artificial Intelligence.

UNIT – II

Email: Functions of Email, Browser, Web Browser, Internet Service Providers.

Introduction to Information Security: Need for Information Security, Threats to Information Systems, Information Assurance, Cyber Security.

Introduction to Application Security and Counter Measures: Introduction to Application Security, Data Security Considerations, Security Technologies, Security Threats, Security Threats to E-Commerce, E-Cash and Electronic Payment System.

UNIT – III

Introduction to Security Measures: Secure Information System Development Application Development Security Information Security Governance and Risk Management , Security Architecture and Design Security Issues in Hardware, Data Storage, and Downloadable Devices , Physical Security of IT Assets Backup Security Measures

UNIT – IV

Introduction to Security Policies and Cyber Laws: Need for an Information Security Policy, Information Security Standards – ISO, Introducing Various Security Policies and Their Review Process , Introduction to Indian Cyber Law Objective and Scope of the IT Act, 2000, Intellectual Property Issues, Overview of Intellectual-Property- Related Legislation in India, Patent, Copyright Law Related to Semiconductor Layout and Design , Software Licence

Text Books:

Dr. Surya Prakash T, Ritendra G, Praveen Kumar S, KLSI, Introduction to Information Security and Cyber Laws (Dreamtech Publication)

B.A/B.Sc.(Computer Applications) Syllabus –CBCS- Pattern System W.E.F – 2019 - 2020
Information Security and Cyber Laws (Semester – VI) – (PROJECT / OPTINAL)

Theory: 4 Hrs/Wk (3 Credits)

Practical: 3 Hrs/Wk (1 Credit)

Total Credits: 3+1= 4 Credits

UNIT – I

Introduction to Information System and Security: Computer Networks, Internet, Protocol, Network Core, Information System, Types of IS, Information Security, Need for Information Security, Information Assurance, Cyber security, Tools of the attacker, Scanning and spoofing, password cracking, malicious software, session hijacking.

UNIT – II

Introduction to Cryptography and Applications: Introduction to Application Security, Data Security Considerations, Security Technologies, Important terms, Threat, Flaw, vulnerability, Attack, Cipher, Private Key Cryptography, Substitution Cipher (Caesar), Transposition (Rail-Fence), Security Threats to E-Commerce, E-Cash and Electronic Payment System, Credit/Debit/Smart Cards, forensics, Digital Signature

UNIT – III

Introduction to Security Measures, Secure Information System Development Application Development Security Information Security Governance and Risk Management , Security Architecture and Design Security Issues in Hardware, Data Storage, and Downloadable Devices , Physical Security of IT Assets Backup Security Measures

UNIT – IV

Introduction to Security Policies and Cyber Laws: Need for an Information Security Policy, Information Security Standards – ISO, Introducing Various Security Policies and Their Review Process, Introduction to Indian Cyber law, Objective and Scope of the IT Act, 2008 , Intellectual Property Issues, Overview of Intellectual-Property- Related Legislation in India, Patent, Copyright, Software License

Text Book:

1. Introduction to Information Security and Cyber laws by SuryaPrakashTripathi
2. Dr. Surya Prakash T, Ritendra G, Praveen Kumar S, KLSI, Introduction to information security and cyber laws (Dreamtech Publication)
3. S. Anderson, Ross, Security Engineering
4. G.R.F. Snyder, T. Pardoe, Network Security
5. Mark Stamp, Information Security: Principles and Practice
6. Basta, W.Halton, Computer Security: Concepts, Issues and Implementation
7. Mark S. Merkow, Jim Breithaupt, Information Security: Principles and Practice

Information Security and Cyber Laws – Lab

Practical: 3 Hrs/Wk (1 Credit)

1. Demonstrate the use of Network tools: ping, ipconfig, ifconfig, tracert, arp, netstat, whois
2. Use of Password cracking tools: John the Ripper, Ophcrack.
3. Verify the strength of passwords using these tools.
4. Perform encryption and decryption of Caesar cipher. Write a script for performing these operations.
5. Perform encryption and decryption of a Rail fence cipher. Write a script for performing these operations.
6. Demonstrate sending of a protected word document.
7. Demonstrate sending of a digitally signed document.
8. Demonstrate sending of a protected worksheet.

Note:

- In the external lab examination student has to execute the project with compilation and deployment steps are necessary.
- External Vice-Voce is compulsory.

**B.A/B.Sc. (Computer Applications)
Model Question Paper (4 – Credits)**

3 Hours

Max Marks -80

PART -A

**Answer any EIGHT questions in part –A
Marks**

8 x 4 M = 32

UNIT- I

- 1
- 2
- 3

UNIT- II

- 4
- 5
- 6

UNIT- III

- 7
- 8
- 9

UNIT- IV

- 10
- 11
- 12

PART – B

Answer All Questions

12 x 4 = 48 Marks

UNIT- I

- 13
- OR**
- 14

UNIT- II

- 15
- OR**
- 16

UNIT- III

- 17
- OR**
- 18

UNIT- IV

- 19
- OR**

**B.A/B.Sc. (Computer Applications)
Practical Question Paper (1 – Credit)**

3 Hours

Max Marks: 25

Answer any TWO questions (15 Marks)

UNIT – I 1 Program

UNIT – II 1 Program

UNIT – III 1 Program

UNIT – IV 1 Program

Viva – 5 Marks

Record – 5 Marks

B.A./B.Sc. (Computer Applications)

Practical Question Paper

3 Hours

50

Credits -I

Max Marks -

Answer any Two

15MX2 = 30 MARKS

UNIT – I 1 Program

UNIT- II 1 Program

UNIT-III 1 Program

UNIT -IV 1 Program

Viva - 10 Marks

Record – 10 Marks