**GOVT.CITY COLLEGE, HYDERABAD**

(Autonomous)

Syllabus for Computer Science

**B.Sc.** Programme under **Choice Based Credit System 2017-18**

**SEMESTER-I**

| Course Code | Course Title | Course Type | Hours/Week | Credits |
|---|---|---|---|---|
| BS106 | Programming in C | DSC–3A | 4T+2P=6 | 4 +1=5 |

**SEMESTER-II**

| Course Code | Course Title | Course Type | Hours/Week | Credits |
|---|---|---|---|---|
| BS206 | Programming in C++ | DSC–3B | 4T+2P=6 | 4 + 1 =5 |

**SEMESTER-III**

| Course Code | Course Title | Course Type | Hours/Week | Credits |
|---|---|---|---|---|
| BS301 | A: SciLab – 1 | SEC–1 | 2 | 2 |
| | B: Boolean Algebra | | | |
| BS306 | Data Structures | DSC-3C | 4T+2P=6 | 4 + 1 =5 |

**SEMESTER-IV**

| Course Code | Course Title | Course Type | Hours/Week | Credits |
|---|---|---|---|---|
| BS401 | C: SciLab – 2 | SEC–1 | 2 | 2 |
| | D: Digital Logic | | | |
| **BS406** | MDBMS | DSC–3D | 4T+2P=6 | 4 + 1 =5 |

**Semester –V &VI**

| Code | Semester | Course Title | Hours | Marks | Credits |
|---|---|---|---|---|---|
| BS501 | V | DBMS-I | 04 | 100 | 03 |
| BS502 | Elective I | Web Technology-I | 03 | 100 | 02* |
| | Elective II | GUI Programming-I | 03 | 100 | 02* |
| | Elective III | Operating Systems-I | 03 | 100 | 02* |
| BS601 | VI | DBMS-II | 04 | 100 | 03 |
| BS-602 | Elective I | Web Technology-II | 03 | 100 | 02* |
| | Elective II | GUI Programming-II | 03 | 100 | 02* |
| | Elective III | Operating Systems-II | | | |
| | Practical-3 | SQL/PLSQL | 03 | 100 | 02 |
| | Practical-4 | Web Applications | 03 | 100 | 02 |
| | TOTAL CREDITS | | | | **32** |
| | Project Work | On the given topic | | 100 | 03 |
| | | | **Total Credits** | | **35** |

Note: * only one elective is compulsory in respective semester

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# B.Sc.(Computer Science)
# Semester-I

## BS106 Programming in C

Theory: 4 credits and Practical: 1 credit
Theory: 4 Hours/Week and Practical: 2 Hours/Week

**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-dimensional Arrays, Character Arrays, Functions from ctype.h, string.h, Multidimensional Arrays.

**Unit – III**

Functions: Concept of Function, Using Functions, Call-by-Value Vs Call-by-reference, Passing Arrays to Functions, Score of Variables, Storage Classes, Inline Functions, and Recursion.
Pointers: Introduction, Address of Operator (&), Pointer, Uses of Pointers, Arrays and Pointers, Pointers and Strings, Pointers to Pointers, Array of Pointers, Pointer to Array, 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), Array of Structures (Union), Structures Vs Unions, Enumeration Types.
Files: Introduction, Using Files in C, Working with Text Files, Working with Binary Files, Files of Records, Random Access to Files of Records, Other File Management Functions.
Text Pradip Dey, Manas Ghosh, Computer Fundamentals and Programming in C (2e)

**References**

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

## BS106 C Lab

Practical: 2 Hours/Week Credit: 1

1. Write a program to find the largest two (three) numbers using if and conditional operator.
2. Write a program to print the reverse of a given number.
3. Write a program to print the prime number from 2 to n where n is given by user.
4. Write a program to find the roots of a quadratic equation using switch statement.
5. Write a program to print a triangle of stars as follows (take number of lines from user):

```
*
* * *
* * * * *
* * * * * * *
* * * * * * * * *
```

6. Write a program to find largest and smallest elements in a given list of numbers.
7. Write a program to find the product of two matrices..
8. Write a program to find the GCD of two numbers using iteration and recursion.
9. Write a program to illustrate use of storage classes.
10. Write a program to demonstrate the call by value and the call by reference concepts.
11. Write a program that prints a table indicating the number of occurrences of each alphabet in the text
entered as command line arguments.
12. Write a program to illustrate use of data type enum.
13. Write a program to demonstrate use of string functions string.h header file.
14. Write a program that opens a file and counts the number of characters in a file.
15. Write a program to create a structure Student containing fields for Roll No., Name, Class, Year and Total
Marks. Create 10 students and store them in a file.
16. Write a program that opens an existing text file and copies it to a new text file with all lowercase letters
changed to capital letters and all other characters unchanged.

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.

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# B.Sc.(Computer Science)
# Semester-II

## DSC–3B Programming in C++

Theory: 4 credits and Practical: 1 credit
Theory: 4 Hours/Week and Practical: 2 Hours/Week

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

**Unit – II**

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, Object Conversion, Aggregation.

**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, Class Hierarchies, 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, Handling the bad_alloc Exception.
Templates: Function Templates–Introduction, Function Templates with Multiple Type, Overloading with Function Templates, Class Templates – Introduction, Defining Objects of the Class Template, Class Templatesand Inheritance, Introduction to the STL.
Text Tony Gaddis, Starting out with C++: from control structures through objects (7e)

**References**

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++

## BS206 C++ Lab

Practical: 2 Hours/Week Credit: 1

1. Write a program to.
a. Print the sum of digits of a given number.
b. Check whether the given number is Armstrong or not
c. Print the prime number from 2 to n where n is natural number given.
2. Write a program to find largest and smallest elements in a given list of numbers and sort the given list.
3. Write a menu driven program that can perform the following functions on strings. (Use overloaded
operators where possible).
a. Compare two strings for equality (== operator)
b. Check whether first string is smaller than the second (<= operator)
c. Copy the string to another.
d. Extract a character from the string (overload [])
e. Reverse the string.
f. Concatenate two strings (+ operator)
4. Write a program using friend functions and inline functions.
5. Write a program to find area of a rectangle, circle, and square using constructors.
6. Write a program to implement copy constructor.
7. Write a program to demonstrate single inheritance and multiple inheritances.
8. Write a program to demonstrate hierarchical inheritance and multipath inheritance(using virtual functions)
9. Write a program to demonstrate static polymorphism using method overloading.
10. Write a program to demonstrate dynamic polymorphism using method overriding and dynamic method dispatch.
11. Write a program to demonstrate the function templates and class templates.
12. Write a program to menu driven program for accepting two numbers and perform calculator operations addition, subtraction, multiplication, division and remainder using function template.
13. Write a program to demonstrate exception handling.
14. Write a program to demonstrate various input-output manipulations.
15. Write a program to implement stack abstract data type.
16. Write a program to demonstrate array of objects.

# GOVT. CITY COLLEGE, HYDERABAD

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**B.Sc COMPUTER SCIENCE**

**Semester - V**

**Paper- V (Database Management Systems-I)**

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**Unit-I: Database Systems Introduction and Fundamentals.**

**Database Systems**: Introducing the database and DBMS, Why the database is important, Historical Roots: Files and File Systems, Problems with File System Data Management, Database Systems. Data Models: The importance of Data models, Data Model Basic Building Blocks, Business Rules, The evaluation of Data Models, Degree of Data Abstraction.

**The Relational Database Model**: A logical view of Data, Keys, Integrity Rules, Relational Set Operators, The Data Dictionary and the system catalog, Relationships within the Relational Database, Data Redundancy revisited, Indexes, Codd's relational database rules.

**Unit-II: Data Modeling**

**Entity Relationship Model:** The ER Model, Developing ER Diagram, Database Design Challenges: Conflicting Goals. Advanced Data Modeling: The Extended Entity Relationship Model, Entity clustering, Entity integrity: Selecting Primary keys, Design Cases: Learning Flexible Database Design.

**Unit- III: Normalization**

**Normalization of Database tables**: Database Tables and Normalization, The need for Normalization, The Normalization Process, Improving the design, Surrogate Key Considerations, High level Normal Forms, Normalization and database design, denormalization.

# GOVT. CITY COLLEGE, HYDERABAD

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**B.Sc COMPUTER SCIENCE**

**Semester - VI**

**Paper- VI (Database Management Systems-II)**

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**Unit-I: Interaction with Databases and Construction of Information System**

**Introduction to SQL**: Data Definition Commands, Data Manipulation Commands, Select queries, Advanced Data Definition Commands, Advanced Select queries, Virtual Tables, Joining Database Tables.

**Advanced SQL**: Relational Set Operators, SQL Join Operators, Sub queries and correlated queries, SQL Functions, Oracle Sequences, Updatable Views, and Procedural SQL. Database Design: The Information System, The Systems Development Life Cycle, The Database Life Cycle, Database Design Strategies, Centralized Vs Decentralized design.

**Unit-II: Transaction Management in DBMS Environment.**

Transaction Management and Concurrency Control: What is transaction, Concurrency control, Concurrency control with locking Methods, Concurrency control with time stamping methods, concurrency control with optimistic methods, database recovery management.

Distributed Database Management Systems: The evolution of Distributed Database Management Systems, DDBMS advantages and Disadvantages, Distribution Processing and Distribution Databases, Characteristics of Distributed database management systems, DDBMS Components, Levels of Data and Process distribution, Distributed database Transparency Features, Distributed Transparency, Transaction Transparency, Performance Transparency and Query Optimization, Distributed Database Design, Client Server VS DDBMS.

**Unit-III : Data Warehouse Concepts and Database Administration.**

The Data Warehouse: The need for data analysis, Decision support systems, the data warehouse, Online analytical processing, Star schemas, Data mining, SQL extension for OLAP.

Database Administration: Data as a corporate asset, the need for and role of databases in an organization, The evolution of the database administration function, The database environment's Human Component, Database administration Tools, The DBA at work: Using Oracle for Database Administration.

**Suggested Reading:**

1. Peter Rob, Carlos Coronel, Database Systems Design, Implementation and Management, Seventh Edition, Thomson (2007)

# GOVT. CITY COLLEGE, HYDERABAD

**(Autonomous)**
**B.Sc COMPUTER SCIENCE**
**Semester – V**
**(Web Technology) Elective -I**

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**UNIT-I: HTML Basics**

Introduction: HTML, XML, and the World Wide Web. HTML: Basic HTML, The Document body, Text, Hyperlinks, Adding more formatting, Lists, Tables, Using colors and images, Images. More HTML: Multimedia objects, Frames, Forms-towards interactivity, The HTML document Head in detail, XHTML- An evolutionary markup.

**UNIT-II: Introduction to the Style Sheets and Java Scripts.**

Cascading Style Sheets: Introduction, Using styles: Simple examples, Defining your own styles, Properties and values in styles, Style sheets- A worked example, Formatting blocks of information, Layers. An introduction to Java Script: What is dynamic html, Java Script, Java script—The basics, Variables, String manipulation, Mathematical functions, Statements, Operators, Arrays, Functions.

**UNIT-III: Objects in Java Script and DHTML.**

Objects in Java Script: Data and objects in java script, Regular expressions, Exception Handling, Built in objects, Events. Dynamic HTML with Java Script: Data validation, Opening a new window, Messages and Confirmations, The status bar, writing to a different frame, Rollover buttons, Moving images, multiple pages in a single download, a text-only menu system, Floating logos.

# GOVT. CITY COLLEGE, HYDERABAD

**(Autonomous)**

**B.Sc COMPUTER SCIENCE**

**Semester - VI**

**Paper- VIII (Web Technology)**

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**UNIT-I: VB Script**

VB Script Introduction –Basics of VB Script –Array Handling – User Interaction in VB Script –Data Validation in VB Script – Handling Runtime Errors.

**UNIT-II: ASP and XML**

Active Server Pages and Java -XML: Defining Data for Web applications: Basic XML, Document type definition, XML schema, Document Object Model, Presenting XML Good Design: Structure, Tables versus Frames, Accessibility, Internationalization, Exercises.

**UNIT-III: Web Based Software's and Protocols**

Useful Software: Web browsers, Perl, Web servers, mod_perl, Databases, Accessing your ISP.

**Suggested Reading:**

1. Chris Bates, Web Programming Building Internet Applications, Second Edition, Wiley (2007)

# GOVT. CITY COLLEGE, HYDERABAD

**(Autonomous)**

**B.Sc COMPUTER SCIENCE**

**Semester – V & VI Semester**

**Paper- VII (Web Technology)**

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**Lab Work:**

1. Write a HTML program illustrating text formatting.
2. Illustrate font variations in your HTML code.
3. Prepare a sample code to illustrate links between different Sections of the page.
4. Create a simple HTML program to illustrate three types of lists.
5. Embed a real player in your web page.
6. Embed a calendar object in your web page.
7. Create an applet that accepts two numbers and perform all the arithmetic operations on them.
8. Create nested table to store your curriculum.
9. Create a form that accepts the information from the subscriber of a mailing system.
10. Design the page as follows:
11. Using "table" tag, align the images as follows:
12. Divide the web page as follows:
13. Design the page as follows:
14. Illustrate the horizontal rulers in your page.
15. Create a help file as follows:
16. Write a Java Script to accept the first, middle and last names of the user and print the name.
17. Evaluate the following:

a) "10"+"90"

b) (10<8)>10:8

c) J=(i++)+(--i)+(++i)+(i++) where i=2

18. Write a Program in Java Script to add two numbers.
19. Write a script to find the factorial of a given number using functions.
20. Write a script to print all primes with in the given range.

21. Write a program to sort the array elements using "Bubble Sort" technique.

22. Write a program in Java Script to implement "Binary Search" technique.

23. Write a script to print all perfect numbers with in the given range.

24. Write a script to evaluate the following expression:

1+2/2! +3/3! +……+n/n!

25. Write a program to implement "Stack" operations.

26. Write a script to print Fibonacci series recursive functions.

27. using a ternary operator, write a script to validate the withdrawal transaction of a customer. If he withdraws more than his balance, such a transaction should be disallowed.

28. Write a script to wish the user "Good Morning" at different Hours of the day.

29. Prompt the user for the cost price and selling price of an
Article and output the profit or loss percentage.

30. Create a customer profile for data entry of customers in a hotel.
The profile should prompt for the name, address, gender, age, Room type, mode of payment of the customer.

31. Create a student registration system with the following fields:
Name, Regd no, Gender, street, city, state, pin code, std code, phone, dbirth, college, Experience, course code. Create a main object called "Stu_info" with all the fields and "College" and "Experience" as sub objects with in the main object. Create separate object definition for College and Experience with the following fields: College: Name, Location, Degree Experience: Employer, Location, Duties and Period

32.Write a script to read information of 'n' students from the user
and store them into the table as follows:

33.Write the script for the various validations given below:

a. Candidate code should be generated

b. Date of Birth should not be null and age should be more than 21.

c. All alphabet fields should be validated.

d. All number fields should accept only numbers.

e. Total experience should be calculated and displayed after accepting input for the "From" and "To" fields in the table.

34. Create a bio-data format with the following fields:

Name, candidate code, Date of birth, Gender, Address1, Address2, Phone, Passport number, Qualification and Percentage.

Also, create the following fields for entering present employment details:

Company name Company Address1, Address2, Address3, Phone, Fax, E-mail, Total Experience and Project details. Create a table with the columns given below in a 3 row structure:

Employer name, Location, From, To, Field

35. Create a web page for a shopping mall that allows the user to tick off his purchases and obtain a bill with the total being simultaneously added up. The web page must follow the specifications as given below:

a.The entire web page must be divided into four portions. The top most portion states the name of the mall, the middle portion of the web page is divided vertically into two, the types of the items available in the mall are displayed on the left side and a detailed description of each item with the prices are available on the right. Finally, the bottom most portion of the web page must display the cash memo with the total along side.

b. Each item in the left hand frame must have a link to the file containing its detailed description, which must be displayed in the right hand frame. Ensure that the user is able to perceive only that portion of the file that is related to the item on which he clicked. Prior to the link being activated, the right hand frame must display a friendly message that gives an idea about its latter contents.

36. Design a simple calculator.

37. Write a DHTML program to give different colors for different heading tags.

38.Using DHTML, invert the behavior of <h1> to <h6> tags.

39.Create an inline style sheet for your web page.

40. Create an external style sheet for creating a font family.

41. Illustrate the creation of embedded style sheet.

42. Illustrate the procedure of creating user-defined classes.

43. Write an ASP script to send the information accepted from the user and send it to a CGI script.

44. Write an ASP script to update the student information with some number ‘n’ in the table.

45. Delete the desired student’s record from the table using the ASP Script.

# GOVT. CITY COLLEGE, HYDERABAD

**(Autonomous)**

**B.Sc. (Computer Science): V- Semester**

**(Elective – 2)**

**GUI Programming**

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**Unit-1 : Familiarization about the Visual Basic IDE Components.**

Getting Starting with Visual Basic 6.0: Introduction to Visual Basic, Visual Basic 6.0 Programming Environment, working with Forms, Developing an Application, Variables, Data types and Modules, Procedures and Control Structures, Arrays in Visual Basic Working with Controls: Introduction, Creating and Using Controls, Working with Control Arrays. Menus, Mouse Events and Dialog Boxes: Introduction, Mouse Events, Dialog Boxes.
(Chapters:1,2,3)

**Unit-2: Objects, Classes and Add-Ins**

Graphics, MDI and Flex Grid: Introduction, Graphics for application, Multiple Document Interface (MDI), Using Flex Grid Control. Object Linking and Embedding: Introduction, OLE Fundamentals, Using OLE Container Control, Using ILE Automation Objects, OLE Drag and Drop. Objects and Classes: Introduction to Objects. Working with Objects, Classes and Class Modules. Working with Add-Ins: Introduction to Add-Ins, Building Add-Ins.
(Chapters: 4, 8, 9, 14)

**Unit-3: File System, ODBC and ActiveX features**

File and File system Controls: Introduction, File System Controls, Accessing Files, and Interface with Windows. ODBC and Data Access Objects: Evolution of Computing Architectures, Data Access Options. ODBC using Data Access Objects and Remote Data Objects: Open Database Connectivity, Remote Data Objects. Working with ActiveX Data Objects: Overviews of ADO and OLEDB, ADO object Model.
(Chapters: 17,5,6,16)

# GOVT. CITY COLLEGE, HYDERABAD

**(Autonomous)**

**B.Sc. (Computer Science): VI- Semester**

**(Elective – 2)**

**GUI Programming**

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**Unit-4 : Data Environment ActiveX EXE and DLL**

Data Environment and Data Report: Introduction, Data Environment Designer, Data Report. All about ActiveX Controls: Introduction, Constituents of ActiveX Control, Exposing Active X Control Properties.

**Unit-5:** ActiveX EXE and ActiveX DLL: Introduction to ActiveX EXE and ActiveX DLL, Creating and ActiveX EXE Component, Creating an ActiveX DLL Component.
(Chapters: 7,10,11)

**Unit-6 : Web Browser and DHTML Programming with Visual Basic.**

ActiveX Document Fundamentals: What is an ActiveX Document, Active Server Pages. Built-in ActiveX Controls: Working with Built-in ActiveX Controls, Additional ActiveX Controls. Introducing Web Browser and DHTML: Introduction, Internet Tools in Visual Basic, Using DHTML in Visual Basic.
(Chapters: 12,13,15)

**Prescribed Text Book:**

1. Content Development Group, Visual Basic 6.0 Programming,

Tata McGraw-Hill Publishing Company Limited (2007).

**Reference Books:**

1. Deitel and Deitel, Visual Basic 2005, Third Edition, Pearson Education (2007).

2. Noel Jerke, Visual Basic 6, The complete reference, Tata Mcgraw Hill (2006).

3. Byran S. Gottfried, Visual Basic, Schaum's outlines, Tata Mcgraw Hill (2004).

# GOVT. CITY COLLEGE, HYDERABAD

**(Autonomous)**

**B.Sc. (Computer Science): V –Semester**

**(Elective – 3)**

**Operating Systems**

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**Unit – 1: OS Fundamentals and Structure of OS.**

Introduction – What Operating Systems do – Computer – system organization – Computer System Architecture – Operating Systems structure – Operating System operations: Process management - Memory management, storage management, Protection and security – Distributed systems – Computing environments. System structures – Operating System services – User Operating System interface – system calls – Types of system calls – system programs – Operating system structure – system Boot. Process concept – Process scheduling – Operations on processes – Inter process communication – Examples of IPC systems – Communication in Client server systems.

**Unit – 2 : Multithreading and Process Synchronization.**

Multithreaded programming – Multithreading models – Thread Libraries – Threading issues – Operating System examples. Process Scheduling –Basic concepts – Scheduling Criteria –Scheduling Algorithms – Multiple process scheduling – Thread scheduling – Operating System examples. Process Synchronization – The Critical section problem – Peter's solution –Synchronization Hardware – Semaphores – Classic problems of Synchronization – Monitors –Synchronization examples. Deadlocks – System model – Deadlock Characterization – Methods for Handling Deadlocks – Deadlock prevention – Deadlock Avoidance – Deadlock Detection –Recovery from Deadlock.

**Unit-3 : Memory Management Strategies.**

Memory – management strategies – swapping – contiguous Memory allocation – paging – structure of the page table – Segmentation. Virtual – Memory management – Demand paying –Page Replacement. File system – File concept – Access Methods – Directory structure –Protection.

# GOVT. CITY COLLEGE, HYDERABAD

**(Autonomous)**

**B.Sc. (Computer Science): VI –Semester**

**(Elective – 3)**

**Operating Systems**

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**Unit-4: File Systems and I/O Management.**

Implementing file systems –File system structure File system implementation – Directory implementation – Allocation methods – Free space management – Efficiency and Performance –Recovery.

**Unit-5:** Secondary storage structure – overview of Mass-storage structure-Disk structure - Disk Attachment – Disk Scheduling – Disk Management – Swap space Management – RAID structure. I/O systems – overview – I/O hardware – Application I/O interface – Kernel I/O subsystem – Transforming I/O requests to Hardware Operations.

**Unit – 6 : Real Time Systems and Case Study.**

Real Time systems – Overview – System characteristics – Features of Real time Kernels – Implementing Real time Operating Systems – Real time CPU Scheduling – Vx **works 5.x Case**
study : The Linux System : Linux history – Design principles – Kernel Modules – Process Management – Scheduling – Memory Management – File systems – Input and Output – Inter process communication – Network structure.

**Prescribed Book:**

1. Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, Operating System

Principles, Seventh Edition, Wiley India Edition (2007) Chapters (1 to 13, 19, 21)

**Reference Books :**

1. William Stallings, Operating Systems Internals and Design

Principles, Fifth Edition, Pearson Education (2007).

2. Andrew S Tanenbaum, Modern Operating Systems, 2nd Edition,

Pearson Education.

# GOVT. CITY COLLEGE, HYDERABAD

**(Autonomous)**

**B.Sc (Computer Science): V&VI -Semester**

**(Elective – 3)**

**Operating Systems Lab**

**LAB CYCLE**

1. Write a shell script to accept two numbers and perform all arithmetic operations on it.

2. Write a shell script to find largest of three numbers using conditional execution operators

3. Write a shell script to accept the name of the file from standard input and perform the following

tests on it

a) File executable

b) File readable

c) File writable

d) Both readable & writable

4.Write a shell script which will display the username and terminal name who login recently in to

the

Unix system.

5.Write a shell script to find number of files in a directory

6.Write a shell script to print the following format

1

12

123

1234

7. Write a shell script which will display the number of days in the given month and year

8. Write a shell script to check whether a given number is perfect number or not

9. Write a shell script for concatenation of two strings using arguments

10. Write a shell script to demonstrate break and continue statements

11. Write a shell script to satisfy the following menu options

a. Display current directory path

b. Display today's date

c. Display users who are connected to the Unix system

d. Quit

12. Write a shell script to delete all files whose size is zero bytes from current directory

13. Write a shell script to display reverse numbers from given argument list

14. Write a shell script to display factorial value from given argument list

15. Write a shell script which will greet you "Good Morning", "Good Afternoon", "Good Evening"

and "Good Night" according to current time

16. To implement the FCFS Algorithm

17. To implement the Shortest Job First Algorithm

18. To implement Priority Algorithm

19. To implement the round robin Algorithm

20. To implement the FIFO page replacement Algorithm

21. To implement LRU page replacement Algorithm

22. To implement Resource Request Algorithm

23. To implement First-Fit, Best-Fit, Worst-Fit Algorithm

24. To implement Sequential File Organization

25. To implement Random File Organization

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# GOVT. CITY COLLEGE, HYDERABAD.

(Autonomous)

Department of Computer Science

## Panel of Examiners

## B. Sc Computer Science Papers ( I to VI Semesters)

| S.No | Name & Details | Paper | Contact Number |
|---|---|---|---|
| 1. | **Smt T.S.Savitha**<br>Asst Prof in Computer Science<br>University College for Women<br>Koti | MDBMS – V<br>MDBMS – VII<br>WEB –TECH – VI<br>WEB– TECH - VIII | Off: 040-2465 7813 |
| 2. | **Smt. K.L. Madhuri**<br>I/c Dept. of Computer Science<br>N.B.Science College,<br>Charkaman, Hyderabad | MDBMS – V<br>MDBMS – VII<br>WEB –TECH – VI<br>WEB– TECH - VIII | M: 98492 10254<br>Off: 24520659 |
| 3. | **Sri. G.V.Srinivas**<br>N.B.Science College<br>Charkaman ,Madina<br>Hyderabad | C-Language – I<br>C- Language- II<br>Java & DS – III<br>Java & DS – IV<br>Data Structures | Off: 24520659 |
| 4. | **Smt Hema Latha**<br>Lecturer in Computer Science<br>University College for Women<br>Koti | C-Language – I<br>C- Language- II<br>Java & DS – III<br>Java & DS - IV | Off: 040-2465 7813 |
| 5. | **Sri Naveen Kumar**<br>Lecturer in Computer Science<br>A N.B.Science College,<br>Charkaman, Hyderabad | MDBMS – V<br>MDBMS – VII<br>WEB –TECH – VI<br>WEB– TECH –VIII | M: 9908311529<br>Off: 24520659 |
| 6. | **Sri G.Bhasker**<br>Lecturer in Computer Science<br>Nrupatunga Degree College<br>Kachiguda, Hyderabad | MDBMS – V<br>MDBMS – VII<br>C-Language – I<br>C- Language- II<br>Data Structures | M: 98496 21307<br>Off: 040-2756 8964 |
| 7. | **Smt. M. Kiran Jyothi**<br>Associate Prof in Comp Science<br>St. Joseph's Degree& PG College<br>King Koti, Hyderabad | MDBMS – V<br>MDBMS – VII<br>C-Language – I<br>C- Language- II | M: 98498 54692<br>Off:040-23234860 |
| 8. | **Smt. T.Esther Ratna**<br>Asst. Prof in Comp Science<br>St. Joseph's Degree& PG College<br>King Koti, Hyderabad | MDBMS – V<br>MDBMS – VII<br>WEB –TECH – VI<br>WEB– TECH –VIII<br>Data Structures | M:86862 50333<br>Off:040-23234860 |

| Signatures of the B O S Members: | 1. | 2. |
|---|---|---|
| | 3. | 4. |

# GOVERNMENT CITY COLLEGE, HYDERABAD

(Autonomous)

B.Sc.(Computer Science)

Semester: I to IV Semesters

Model Question Paper

**Time: 3 Hrs** **Max. Marks: 80**

## Section-A

**Short answer questions**

**Answer any five questions** **5x4=20M**

1.
2.
3.
4.
5.
6.
7.
8.

Note: Two questions from each unit

## Section-B

**Long answer questions** **4x15=60**

9. (A) Or (B)

10. (A) Or (B)

11. (A) Or (B)

12. (A) Or (B)

# GOVERNMENT CITY COLLEGE, HYDERABAD

(Autonomous)

B.Sc.(Computer Science)

Semester: V and VI Semesters

Model Question Paper

**Time: 2 1/2Hrs** **Max. Marks: 75**

## Section-A

Answer the following (5 Questions) 5x2=10

1.
2.
3.
4.
5.

## Section-B

**II.Answer any 7 of the following** **7x5=35**

**6.**

**7.**

**8.**

**9.**

**10.**

**11.**

**12.**

**13.**

**14.**

## Section-C

**III. Answer the following** **3x10=30**

15. OR 16.

17. OR 18.

19. OR 20