

**Govind Guru Tribal University, Banswara**  
**Details of Discipline Centric Core and Elective Courses for freshers**  
**who will be admitted in the session 2023-24**

*(Separate sheet to be used for each discipline/subject)*

Name of University: Govind Guru Tribal University, Banswara

Name of Faculty(ies) : SCIENCE

Name of Discipline/Subject: COMPUTER SCIENCE

Three-Year Bachelor Degree Program								
#	Level	Semester	Type	Title	Credits			
					L+T	P	Total	
1	5	I	DCC	INTRODUCTION TO INFORMATION TECHNOLOGY	3	1	2	6
2	6	II	DCC	Problem-Solving Through C Programming	3	1	2	6
3	6	III	DCC	Data Structure Using C	3	1	2	6
4	6	IV	DCC	Database Management Systems	3	1	2	6
5	7	V	DSE		3	1	2	6
6	7	VI	DSE/GE		3	1	2	6

  
**Rajendra Prasad Agarwal**  
**Registrar**  
**Govind Guru Tribal University**  
**Banswara (Rajasthan)**





# GOVIND GURU TRIBAL UNIVERSITY BANSWARA

**B.Sc.**  
**Three Year Graduate Course**  
**Semester I**  
**COMPUTER SCIENCE**  
**DCC**  
**INTRODUCTION TO**  
**INFORMATION TECHNOLOGY**

**UNIT -I**

Computer Basics :- Introduction and Evolution of Computers, Generations of Computers, Classification of Computers. The Computer System :- Components of a Computer System, Applications of Computers. Computer Memory :- RAM and ROM. Positional Number System:- Binary, Decimal, Octal and Hexadecimal number system, Conversion from one base to another base. Binary arithmetic and Binary arithmetic in 1's and 2's complement . Basic postulates of Boolean Algebra, De- Morgan's Theorem. Basic Logic Gates and Universal Logic Gates. Exclusive - OR, Equivalence OR gates. Combinational Circuits : Half Adder , Full Adder, Subtractor, Comparator , Decoder , Encoder , Multiplexer , Demultiplexer. Minterm and Maxterm of Boolean Function. Simplifications of SOP Boolean expressions using karnaugh map - 3 variables Boolean function, 4 variables Boolean Function. Flip Flop : Edge Triggered versus Pulse Triggered Flip Flop, S-R , D , J-K , T edge triggered Flip flop. J-K Master slave Flip flop

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## UNIT -II

Computer Basics and System Software :- Introduction and Evolution of Computers, Generations of Computers, Classification of Computers. The Computer System :- Components of a Computer System, Applications of Computers. Computer Memory :- RAM and ROM. Positional Number System:- Binary, Decimal, Octal and Hexadecimal number system, Conversion from one base to another base. Binary arithmetic and Binary arithmetic in 1's and 2's complement Introduction to System Software, Distinction between system software and application software. Introductory idea of Assembler, Compiler, Interpreter, Loader and Linker. Computer Language :- Introduction with Advantages and limitations of Machine Language, Assembly Language and High Level Language .

## UNIT III

Operating System :- Evolution of Operating System, Multi Programming, Multi Tasking , Multi Processing , Time Sharing , Real time, Some popular Operating Systems :- Introduction to UNIX and MS -DOS with commands , Graphical User Interface:- Introduction to Windows, Electronic Mail, World Wide Web, URL, Browsers, Search Engines. Uses of Word Processing software package:- MS-Word. Introduction to Computer Network ,Network Types - LAN,WAN and MAN and various network topologies.

Recommended Books :-

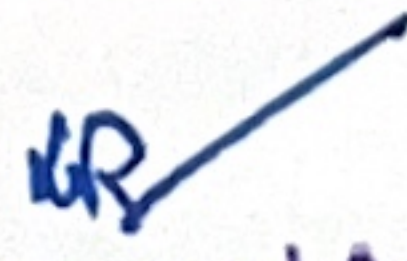
1. Computer Fundamentals :- Pradeep Sinha and Priti Sinha
2. V Rajaraman :- Fundamentals of Computers
3. Satish Jain : Information Technology
4. Alexis Leon : Fundamentals Of Information Technology
5. V.Rajaraman : Fundamentals of Computer
6. Digital Fundamentals :-Thomas L. Floyd
7. Digital Logic and Computer Design :- Mano M.

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## PRACTICAL :-

1. Logic circuit and the function of basic logic gates and verify their truth tables.
2. Logic circuit and the function of universal gates.
3. Logic circuit and the function of XOR and XNOR gates.
4. To study the different logical expressions and their simplification.
5. To familiarize and verify the Boolean algebraic functions.
6. Conversion of positional number system from one base to another base.
7. Finding the Maxterm of Boolean function.
8. Finding the Minterm of Boolean function.
9. Conversion of Maxterm to Minterm and vice versa.
10. Logic circuit and working of half adder.
11. Logic circuit and working of Full adder.
12. Logic circuit and working of Decoder circuits.(BCD to Decimal)
13. Logic circuit and working of encoder circuits.(Decimal to BCD)
14. Logic circuit and working of Multiplexer.(4 X 1 ) (8 X 1)
15. Logic circuit and working of Demultiplexer (1 X 4) (1 x 8)
16. Logic circuit and working of Edge Triggered Flip flops circuits.  
S-R , D , J-K , T
17. Logic circuit and working of Master Slave Flip Flop circuits.

  
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# GOVIND GURU TRIBAL UNIVERSITY BANSWARA

**B.Sc.**  
**Three Year Graduate Course**  
**Semester II**  
**COMPUTER SCIENCE**  
**DCC**  
**Problem Solving Through C Programming**

## UNIT - I

Programming in C: Algorithm development: Definition and properties of algorithms, flow charts symbols, Types of flow chart, Example of simple algorithms and flow chart. Errors : syntax error , runtime error, logical error. structure of C programs, compilation and execution of C programs, character set, keywords, data types , constants, symbolic constants and variables, expressions. Operators : Assignment , Arithmetic , Relational , Logical, Conditional , comma , Increment/ Decrement, Bitwise, sizeof operator , Compound assignment operators. Associativity and precedence of C operators. Input/ output statements. Control statements - if-else, switch.

## UNIT - II

Loops - for, while, do-while .Nested loops and combined loops. Break and Continue statements. Functions: built-in and user-defined functions, function declaration , Advantages of userdefined functions. Category of functions. parameter passing- call by value & call by reference, recursive functions.

  
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### UNIT -III

Array: Creating of one dimensional array, initialization , Accessing elements of 1 D array. Two dimensional array ,initialization , Accessing elements of 2D array. Array and strings, string-handling functions. Structures and Union : Declaration of structures, initialization and accessing structure members. Unions, enumeration. File Input/Output – Create, Open, Read, Write, Delete, Close.

#### **Recommended books :**

1. Programming with C :- Schaum's outline Series
2. Programming with C :- E. Balagurusamy

### PRACTICAL BASED ON :- PROBLEM SOLVING THROUGH C PROGRAMMING

1. Programs based on C operators - Arithmetic , Relational , Conditional , sizeof , Logical , Bitwise, Increment /Decrement Operators
2. Compute area and circumference of a circle.
3. Compute surface area and volume of a sphere.
4. Compute sum of digit of 4 digit numbers.
5. Compute simple and compound interest.
6. Fahrenheit to Celsius conversion.
7. Program based on selective structure.  
Using simple if .. else statements Using Nested if .. else statements. Using else .. if ladder. Using Switch statements.
8. Program based on Repetitive structure.  
Using while Loop. Using do .. while loop. Using for loop. Using combined loop. Using nested loops
6. Programs using break and continue statements within loop.
9. Programs using 1D Array. For Exp. Program create read and write 1D Array. Linear search in 1D Array. Find largest and Smallest from 1D Array. Sorting the 1D Array.
9. Programs Using 2D Array. For Exp. Program to create read and print m\* n matrix. Program add ,subtract & multiply two matrices. Program to add row and column total. To change diagonal of square matrix.
10. Programs using string handling function.

  
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11. Programs using functions. Using function and array. Using recursive function. Using call by value and call by reference. Using function with arguments no return values. Using function with arguments with return values.
12. Programs using structure. Create and print the structure of book, football team, date etc. Program using structure and function. Program using array of structure.
13. Program based on files. Using File management commands. To display contents of a file. To copy contents of a file from one to another

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