



**KOLHAN UNIVERSITY**

Chaibasa, Jharkhand, India

**Proposed Syllabus for  
Four Year Undergraduate Programme (FYUGP)  
of**

***Bachelor of Science in Information Technology  
(B.Sc. IT)***

***Semester - 1***

**With Effect From  
Academic Year 2022 - 2023**

**As Per Revised Curriculum and Credit Framework for the  
FYUGP under the provisions of NEP - 2020**

## B.Sc.I.T. Course Structure F.Y.U.G.P.

Sem.	Paper Code	Paper Title	L-T-P	Credits	Contact Hours	
<b>I</b>	AEC-1	Language and Communication Skills: Hindi Composition		2	30	
	VAC-1	Value Added Course – 1	(i) Understanding India		4	60
			(ii) Environmental Studies			
	SEC-1	Digital Education		3	45	
	MDC-1	Introduction to Computers		3	45	
	MN-1A	Th: Fundamentals of Information Technology Pr: Lab on MS Office	3-0-1	4	75	
MJ-1	Th: C Programming Language	3-0-1	4	75		
	Pr: C Programming Language Lab					

### Marks Distribution

Subjects	Credits	FM		Semester Internal Examination	End Semester University Examination	
		Th	Pr		Th	Pr
Ability Enhanced Courses	2	50		---	50	
Value Added Courses	2	50		---	50	
Skill Enhancement Courses	3	75		---	75	
Multi-Disciplinary Courses	3	75		---	75	
		Th	Pr	Th	Th	Pr
MN 1A	4	75	25	15	60	25
MJ 1	4	75	25	15	60	25

## Choice of Subjects

<b>Sl. No.</b>	<b>Major Subjects</b>	<b>MDC/Minor</b>
1	B.Sc. (IT)/ B.Sc. (Env. and Water Mgt.)/ B.A. (Mass Communication)/ B.C.A.	Physics Chemistry Geology Commerce Mathematics Statistics History Economics Pol. Sc. Geography Sociology Cyber Defence

<b>MN-1A: Fundamentals of Information Technology</b>		
<b>3 Credits</b>	<b>45 Class Hours</b>	<b>Semester I.</b>

### OBJECTIVES

- Understand the basics of information technology
- Understand the Computer Architecture.
- Identify the number of variables and their simplification importance.
- Understand different types Input/Output Peripherals devices.
- Identify Register Transfer, Micro-operations and Central Processing Unit
- Describe performance evaluation of computers, computer architecture and organization, computer arithmetic, Memory, and CPU design.

**Course Outcome:** Students will learn the architecture of computer, peripheral devices, knowledge of fundamental concepts of computers and information technology.

<b>Unit 1</b>	<b>Introduction to Computer.</b> (5 classes) Introduction; Digital and Analog Computers; Characteristics of Computer; History of Computer; Generations of Computer; Classification of Computer; The Computer System; Application of Computers.
<b>Unit 2</b>	<b>The Computer System Hardware.</b> (15 classes) Computer Architecture Introduction, Central Processing Unit (CPU) Memory, Communication between Various Units of a Computer System, Memory- RAM, ROM. Input/ Output Peripherals Introduction, Keyboard, Pointing Devices, Speech Recognition, Digital Camera, Scanners, Optical Scanners. Introduction, Classification of Output, Hard Copy Output Devices, Printers, Plotters, Computer Output Microfilm (COM), Soft Copy Output Devices, Monitors, Audio Output, Projectors, Terminals.
<b>Unit 3</b>	<b>Computer Software.</b> (8 classes ) Introduction; Types of Software; System Software; Application Software; Software Acquisition; Operating System (Introduction, Objectives of Operating System, Types of OS, Functions of OS, Process Management, Memory Management, File Management.
<b>Unit 4</b>	<b>Computer Memory.</b> (7 classes ) Introduction; Memory Representation; Memory Hierarchy; CPU Registers; Cache Memory; Primary Memory; Secondary Memory; Access Types of Storage Devices; Magnetic Tape; Magnetic Disk; Optical Disk; Magneto-Optical Disk; How the Computer uses its memory
<b>Unit 5</b>	<b>The Internet and Internet Services</b> (5 classes) Introduction; History of Internet; Uses of Internet; Introduction to Internet of Things (IoT), Cloud Computing, Introduction to E-commerce
<b>Unit 6</b>	<b>Working with windows:</b> (5 classes) Introduction of windows, Components of MS Office, How to create a Folder, Copying and cutting files, Renaming, Programs, Documents, Mail merge

### Books:

1) Introduction to computer Science, IITL Education solution Limited, R&D Wing, PEARSON Education and Edition 2004

### Reference Books:

- 1) Rajaraman V. – Fundamental of Computers, Prentice Hall of India Pvt. Ltd., New Delhi – 2nd edition, 1996.
- 2) Peter Nortorns, “ Introduction to Computer”, TMH, 2004

<b>MN-1 (Pr): Lab of MS Office</b>		
<b>1 Credit</b>	<b>15 Class Hours (30 Hours)</b>	<b>Semester I.</b>

### **COMPUTER SOFTWARE TOOLS (MS WORD, EXCEL)**

**MS WORD: 5 classes**

- Creating, editing, saving and printing text documents
- Font and paragraph formatting
- Simple character formatting
- Inserting tables, smart art, page breaks
- Using lists and styles
- Working with images
- Using Spelling and Grammar check
- Mail Merge

**MS EXCEL: 5 classes**

- Spreadsheet basics
- Creating, editing, saving and printing Spreadsheet
- Working with functions & formulas
- Graphically representing data: Charts & Graphs
- Speeding data entry: Using Data Forms

**MS POWER POINT: 5 classes**

- Opening, viewing, creating, and printing slides
- Applying auto layouts
- Adding Custom Animation
- Using Slides transition
- Graphically representing data: Charts & Graphs

<b>MJ-1 (Th): Problem Solving and Programming with C</b>		
<b>3 Credit</b>	<b>45 Class Hours</b>	<b>Semester I.</b>

### Objectives

- To understand about the programming language
- To develop C Programs using basic Programming Constructs, Loops Arrays and Strings
- To develop applications in C using Functions , Pointers and Structures
- To perform I/O operations and File Handling in C

### Course Outcomes

After the completion of this course, students will be able to:

- Choose the loops and decision-making statements to solve the problem.
- Implement different Operations on arrays.
- Use functions to solve the given problem.
- Understand pointers, structures and unions.
- Implement file Operations in C programming for a given application.

### Detailed Syllabus:

<b>Unit 1</b> 5 classes	<b>C language fundamentals:</b> Introduction to C, Character Set, Keywords, Identifiers, Constants, Variables, Storage class, Data types, Operators & Expressions, Header files, Library files, Pre-processor directives, #include and #define.
<b>Unit 2</b> 10 classes	<b>Decision making and Branching:</b> Decision making with if statement– Simple if statement, The if .... Else statement, Nesting of if .... Else statement, The else if ladder, The switch-case statement, The? : Operator. <b>Decision making and Looping:</b> The while statement, The do statement, The for statement, Jumps in loops.break ,continue,goto statement
<b>Unit 3</b> 10 classes	<b>Arrays:</b> One - dimensional arrays, Declaration of one – dimensional arrays, Two – dimensional arrays, Declaration of two – dimensional arrays, Multi – dimensional arrays. <b>Character Arrays and String:</b> Declaring and initializing stringvariables, Reading string from terminal, writing string to screen,Putting string together, Comparison of two strings, String handlingfunctions, Other features of strings
<b>Unit 4</b> 8 classes	<b>User defined functions:</b> A multi – function program, Definition offunction, Function calls, Function declaration, Category of functions,Nesting of functions, Recursion, Passing arrays to functions, Passingstrings to functions
<b>Unit 5</b> 6 classes	<b>Structures, Unions and File Handling:</b> Defining a structure, Declaring structure variables, Accessing structure members, Arrays of structures, Arrays within structures, Structures within structures, Structures and functions, Union.
<b>Unit 6</b> 6 classes	<b>Pointers:</b> Understanding pointers, Accessing the address of a variable, declaring pointer variables, Pointer expressions, Array of pointers, Pointers to function, Pointers and structures. <b>File Management:</b> Defining and opening a file, Closing a file, Input/ Output operations on files

### Books:

- 1)Y. Kanetkar, “Let Us C”, BPB Publication, 13th Edition.
- 2)E.Balagurusamy,” Programming in ANSI C”, TMH, Sixth Edition.

<b>MJ-1 (Pr): Programming using C Lab</b>		
<b>1 Credit</b>	<b>15 Class Hours (30 Hours)</b>	<b>Semester I</b>

### OBJECTIVES:

- To develop programs in C using basic Programming Constructs
- To develop applications in C using Arrays and Strings
- To design and implement applications in C using Functions, Structures
- To develop applications in C using Files

### List of Programs as Assignments:

- Write a C program to find ASCII value of a character entered by the user.
- Write programs using decision-making constructs.
- Write a program to find whether the given year is leap year or not? (Hint: not every centurion year is a leap. For example, 1700, 1800 and 1900 is not a leap year)
- Write a C program to perform the simple Calculator operations, namely, addition, subtraction, multiplication, and division.
- Write a program to check whether a given number is Armstrong number or not?
- Write a program to check whether a given number is odd or even?
- Write a C program to print pattern

```

1. *           2. ****           3. *
   **          ***              ***
   ***                **         *****
   ****             *           *****

```

- Write a program to find out the average of 4 integers.
- Write a program to display array elements using two dimensional arrays.
- Write a program to perform swapping using function.
- Write a program to display all prime numbers between two intervals using functions.
- Write a program to reverse a sentence using recursion.
- Write a program to find the factorial of a given number using Recursion.
- Write a program to find the GCD of two numbers using Recursion.
- Write a program to get the largest element of an array using the function.
- Write a program to concatenate two strings.
- Write a program to find the length of String.
- Write a program to find the frequency of a character in a string.
- Write a program to store Student Information in Structure and Display it.
- The annual examination is conducted for 10 students for five subjects.
- Write a program to read the data and determine the following:
  - (a) Total marks obtained by each student.
  - (b) The highest marks in each subject and the marks of the student who secured it.
  - (c) The student who obtained the highest total marks.
- Insert, update, delete and append telephone details of an individual or a company into a telephone directory using random access file.
- C Program to read name and marks of n numbers of students and store them in a file.