



IPS College of Technology & Management

(An Institute of IPS Group of Colleges)

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DEPARTMENT OF CSE/IT

INTERNSHIP PROGRAM

FOR

CSE/IT/EE/EC (BATCH-2017)

C/C++

JUNE 04-29, 2018

Coordinator: Mrs. Ritika Keswani

**Trainer: Mr. Manvendra Gautam
Mr. Saurabh Agarwal**



DEPARTMENT OF CSE/IT

INTERNSHIP PROGRAM

ON C/C++ PROGRAMMING

(June 04-29, 2018)

Registration Form

1. Name of the student _____
2. Father's / Husband's name _____
3. Local Guardian's Name: _____
4. Institution Name: _____
5. Enrollment / Roll No. (RGPV) _____
6. Year of Admission: _____
7. Permanent address _____
_____ Pin Code _____
8. Student's Mobile No. _____ Mobile No. of Parent/Guardian _____
9. E-Mail address _____
9. Registration Amount: _____ Receipt No. _____

Affix your latest
duly attested
photograph

Declaration

I hereby declare that all the above mentioned information is true. Further, I am assuring you that my attendance will be more than 80% in this Internship program.

Date _____

Signature of the student



INTERNSHIP PROGRAM COURSE CONTENTS

C PROGRAMMING

- ❖ **A Quick Overview of C**
 - Why we use C
 - Purpose of header file.
 - Meaning of common syntax in C
 - A Very Simple Program
 - Writing the Program`
 - Compiling the Program
 - Running the Program

- ❖ **Constant and Variable Types**
 - Variables
 - Variable Names
 - Global Variables
 - Static Variables
 - Constants
 - Arrays

- ❖ **Expressions and Operators**
 - Assignment Statement
 - Arithmetic operators
 - Type conversion
 - Comparison
 - Logical Connectors
 - Bitwise operator

- ❖ **Control Statements**
 - The if else Statement
 - Nested If else
 - The switch Statement
 - Loops
 - The while Loop
 - The do while Loop
 - The for Loop
 - Nested Loops
 - The break Statement
 - The continue Statement

- ❖ **Functions in C**
 - Scope of Function Variables
 - Modifying Function Arguments
 - Declaration, Calling and Definitions of functions

- ❖ **Arrays**
 - Use of arrays
 - 1d Array
 - 2d Array
 - Searching, Sorting on array
 - Another Functionality on Array

❖ String handling

- Initializing Strings
- strlen() function
- strcmp function
- strcmpi() function
- strcpy() function
- strlwr () function
- strrev() function

❖ Input and Output

- The Standard Input Output File
- Character Input / Output
 - getchar
 - putchar
- Formatted Input / Output
 - printf
 - scanf
- Whole Lines of Input and Output
 - gets
 - puts

❖ Handling Files in C

- C File Handling - File Pointers
 - Opening a file pointer using fopen
 - Closing a file using fclose
- Input and Output using file pointers
 - Character Input and Output with Files
 - Formatted Input Output with File Pointers
 - Formatted Input Output with Strings
 - Whole Line Input and Output using File Pointers

❖ Structures

- Defining a Structure
- Accessing Members of a Structure
- Structures as Function Arguments
- Further Uses of Structures

❖ The C Preprocessor

- Using #define to Implement Constants
- Using #define to Create Functional Macros

❖ Pointers

- User of Pointers
- Declaration of Pointers
- Pointer with Variable
- Pointer with array
- Pointer with Function
- Pointer with String
- Pointer with Structure



INTERNSHIP PROGRAM COURSE CONTENTS

C++ PROGRAMMING

- ❖ **Fundamentals of Object-Oriented Programming**
 - Structured Vs. Object-Oriented Programming
 - Objects and Classes.
 - Encapsulation and Data Abstraction
 - Inheritance
 - Delegation-Object Composition
 - Polymorphism
 - Message Communication

- ❖ **Moving from C to C++**
 - Parameters passing by references
 - Inline Functions
 - Function overloading

- ❖ **Data Types, Operators and Expressions**

- ❖ **Control Flow**
 - if statement, if-else Statement , Nested if-else Statements
 - for Loop ,while loop, do..while Loop
 - break Statement
 - switch Statement
 - continue Statement

- ❖ **Arrays and Strings**

- ❖ **Modular Programming with functions**
 - Function Components
 - Passing Data to Functions.
 - Function Return Data Type
 - Library Functions
 - Parameter Passing
 - Return by Reference
 - Inline Functions
 - Function Overloading
 - Function Templates
 - Storage Classes

- ❖ **Structures and Unions**

❖ **Pointers and runtime binding**

- Pointers and their Binding
- Address Operator &
- Pointer Variables
- Void Pointers
- Pointers to Pointers
- Pointers to Objects
- Pointers to Constant Objects
- Constant Pointers
- Pointers to Structures
- Wild Pointers.

❖ **Classes and Objects**

❖ **Object Initialization and cleanup**

- Constructors
- Parameterized Constructors
- Destructor
- Constructor Overloading
- Order of Constructor and Destructor
- Nameless Objects
- Dynamic Initialization through Constructors
- Copy constructor

❖ **Dynamic Objects**

- Pointers to Objects.
- Live Objects.
- Array of Objects.
- Array of Pointers to Objects
- Pointers to Object Members

❖ **Inheritance**

- Forms of Inheritance
- Inheritance and Member Accessibility.
- Constructors in Derived Classes.
- Destructors in Derived Classes.
- Multilevel Inheritance.
- Multiple Inheritances.
- Hierarchical Inheritance.



❖ **Virtual Functions**

- Need for Virtual Functions.
- Pointer to Derived Class Objects.
- Virtual Functions.
- Array of Pointers to Base Class Objects.
- Pure Virtual Functions

❖ **Generic Programming with templates**

- Function Templates
- Overloaded Function Templates.
- Multiple Arguments Function Template.
- Inheritance of Class Template

❖ **File Handling**

- Hierarchy of File Stream Classes.
- Opening and Closing of Files.
- File Modes.
- Sequential/Random Access to a File.
- Error Handling During File Manipulations.

❖ **Exception Handling**

- Error Handling
- List of Exceptions
- Catch all Exceptions
- Exceptions in Constructors and destructors, Operator Overloaded Functions
- Handler throwing the same Exception again