

## 9-Week Course Lesson Plan: Introduction to C Programming

### Course Layout

#### Week 1: Introduction to C Programming and Basic Concepts

- Overview of **C programming language**
- Setting up the **development environment**
- Writing and running **your first C program**
- Understanding **syntax, tokens, and structure**

#### Week 2: Variables and Data Types in C

- Data types in C (**int, float, char, double**)
- Variables, constants, and **type conversion**
- Input/output functions: **printf(), scanf()**
- Operators: **arithmetic, relational, logical, bitwise**

#### Week 3: Control Flow in C

- Conditional statements: **if, if-else, switch-case**
- Looping structures: **for, while, do-while loops**
- Using **break, continue, and goto**

#### Week 4: Functions in C

- Function declaration, definition, and **calling functions**
- Function arguments and **return types**
- **Recursion in C programming**
- Scope and **storage classes**

#### Week 5: Arrays in C

- Introduction to **arrays and memory allocation**
- **Single and multidimensional arrays**
- **String handling & manipulation**
- **Pointers and array relationships**

#### Week 6: Structures and Union in C

- Introduction to **structures and unions**

- **Defining and using structures**
- **Memory allocation & differences between structures and unions**
- **Working with files using structures**

#### **Week 7: Advanced Concepts of C Programming**

- **Dynamic memory allocation (malloc, calloc, realloc, free)**
- **Pointers and functions**
- **File handling: opening, reading, writing, and closing files**
- **Error handling and debugging techniques**

#### **Week 8: Writing, Compiling, and Debugging C Programs**

- **Best practices for coding and debugging in C**
- **Understanding compiler warnings and errors**
- **Code optimization techniques**
- **Hands-on mini projects in C**

#### **Week 9: Engineering for Managers and Soft Skill Development**

- **Problem-solving and analytical thinking**
- **Teamwork and collaboration in software projects**
- **Project documentation and version control**
- **Presentation and communication skills for engineers**

Would you like to add coding exercises or real-world applications? 😊