C programming:

Lecture 1: Introduction to C Programming

- Overview of C programming language
- History and significance
- Basic structure of a C program
- Setting up the development environment (IDEs, compilers)
- Writing and compiling a simple "Hello, World!" program

Lecture 2: Data Types and Variables

- Fundamental data types (int, float, double, char, etc.)
- Declaring variables
- Constants
- Variable scope and lifetime
- Type modifiers (signed, unsigned, short, long)

Lecture 3: Operators and Expressions

- Arithmetic operators (+, -, *, /, %)

- Relational and logical operators (>, <, >=, <=, ==, !=, &&, ||, !)
- Assignment operators (=, +=, -=, *=, /=, %=)
- Increment and decrement operators (++ and --)
- Bitwise operators (&, |, ^, <<, >>)

Lecture 4: Control Flow Statements

- Conditional statements (if, else if, else)
- Switch statement
- Loops (while, do-while, for)
- Nested loops and loop control statements (break, continue)

Lecture 5: Arrays and Strings

- Declaring and initializing arrays
- Multi-dimensional arrays
- Accessing array elements
- String handling functions (strlen(), strcpy(), strcat(), etc.)
- String manipulation techniques

Lecture 6: Functions

- Function declaration and definition
- Function prototypes
- Passing arguments to functions (by value, by reference)
- Returning values from functions
- Recursion
- Scope of variables in functions

Lecture 7: Pointers

- Understanding pointers
- Declaring and initializing pointers
- Pointer arithmetic
- Pointers and arrays
- Pointers and functions
- Dynamic memory allocation (malloc, calloc, realloc, free)

Lecture 8: Structures and Unions

- Defining structures and unions
- Accessing structure members

- Nested structures
- Structures and functions
- Differences between structures and unions

Lecture 9: File Handling

- File operations (opening, reading, writing, closing)
- File pointers
- Sequential and random access files
- Error handling with files
- File manipulation functions (fopen(), fclose(), fread(), fwrite(), etc.)

Lecture 10: Advanced Topics (Optional)

- Preprocessor directives (#define, #include, #ifdef, etc.)
- Typedef
- Enumerations
- Command-line arguments
- Bit manipulation techniques