

# **Introduction to Programming using C**

## **BCA(N)-101**

### **BLOCK I**

**Unit 1:** Programming Building Blocks: Specification, Implementation , Hello, World!

Example.

**Unit 2:** Variables, Expressions, and Statements: Variables, Operators, Expressions, Statements.

**Unit 3:** Functions: Passing by Value, Function Prototypes.

**Unit 4:** Variables: Up Scope, Storage Classes

### **BLOCK II**

**Unit 5:** Pointers: Memory and Variables, Pointer Types, Dereferencing, Passing Pointers as Parameters.

**Unit 6:** Structures: Pointers to structs, Passing struct pointers to functions.

**Unit 7:** Arrays: Passing arrays to functions.

**Unit 8:** Strings

**Unit 9:** Dynamic Memory: malloc(), free(), realloc(), calloc().

### **BLOCK III**

**Unit 10:** Advance Topics: Pointer Arithmetic, typedef, enum, More struct declarations, Command Line Arguments, Multidimensional Arrays, Casting and promotion, Incomplete types, void pointers, NULL pointers, More Static, Typical Multifile Projects, The Almighty C Preprocessor, Pointers to pointers, Pointers to Functions, Variable Argument Lists.

**Unit 11:** Standard I/O Library: fopen(), freopen(), fclose(), printf(), fprintf(), scanf(), fscanf(), gets(), fgets(), getc(), fgetc(), getchar(), puts(), fputs(), putc(), fputc(), putchar(), fseek(), rewind(), ftell(), fgetpos(), fsetpos(), ungetc(), fread(), fwrite(),

feof(), ferrror(), clearerr(), perrror(), remove(), rename(), tmpfile(), tmpnam(), setbuf(),  
setvbuf(), fflush().

**Unit 12:** String Manipulation: strlen(), strcmp(), strncmp(), strcat(), strncat(), strchr(),  
strrchr(), strcpy(), strncpy(), strspn(), strcspn(), strstr(), strtok().

**Unit 13:** Mathematical Functions: sin(), sinf(), sinl(), cos(), cosf(), cosl(), tan(),  
tanf(), tanl(), asin(), asinf(), asinl(), acos(), acosf(), acosl(), atan(), atanf(), atanl(),  
atan2(), atan2f(), atan2l(), sqrt().

**Suggested Readings:**

1. Let us C-Yashwant Kanetkar.
2. Programming in C- Balguruswamy
3. The C programming Lang., Pearson Ecl – Dennis Ritchie
4. Structured programming approach using C-Forouzah & Ceilberg Thomson learning  
publication.
5. Pointers in C – Yashwant Kanetkar