**COURSE CODE : CS1C01**

**COURSE TITLE** : **COMPUTER PROGRAMMING**

**UNIVERSITY : DIBRUGARH UNIVERSITY**

**SEMESTER : SECOND SEMESTER**

**CREDIT : 03**

**L:T:P : 3:0:0**

**End sem. Examination for this course will carry 100 marks**

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| Module | Details of module | No. of Lectures |
| 1 | Introduction to computer organization; Software and hardware, Definition and examples of Operating System, Machine language, Assembly Language, High Level Language, Procedural & Object Oriented Programming Methodologies, Structured Programming | 4 |
| 2 | Introduction to C language with the help of a simple ‘hello world’ program, Data types in C, operators in C language, Control Structures – If else, While, for, do-while, Switch, break and continue statements, Formatted input-output for printing Integers, floating point numbers, characters and strings. | 6 |
| 3 | *Designing Structured Programs in C-* Top Down Design and Stepwise refinement, C function as a module, Function Definition, Prototypes, Header files, Parameter passing in C, Call by Value and Call by Reference; Standard Library functions, Recursive functions, Preprocessor commands, Scope, Storage classes. | 6 |
| 4 | Introduction to arrays, declaring arrays in C, Passing arrays to functions, two – dimensional arrays, Multidimensional arrays. | 2 |
| 5 | Introduction to Pointers in C, Pointer variable declaration and Initialization. Pointer operators, Pointer expressions and arithmetic, Relationship between pointers and arrays; Concept of strings in C, Standard String Functions. | 5 |
| 6 | Introduction to Derived types, Declaration, definition and initialization of structures, accessing structures, passing structures to functions, unions, arrays of structures, structures and pointers, self referential structures. | 4 |
| 7 | Introduction to Data Structures, Stacks, Queues, Trees, representation using arrays. | 2 |

***Text/Reference Books:***

1. Y.P. Kanetkar - Let us C, Infinity Science Press
2. Y.P. Kanetkar - Understanding pointers in, BPB Publication
3. Dietel & Dietel (2000), *C – How to Program,* Pearson Education
4. Ellis Horowitz, Sartaj Sahni, Susan Anderson (1993), *Fundamentals of Data Structures in C,* Prentice Hall of India.
5. B.W. Kernighan and Dennis M.Ritchie- *The C Programming Language*, Pearson Education, 1988.
6. J.R. Hanly and E.B. Koffman - *Problem Solving and Program Design in C,* Pearson Education, 2007.