

Principles of Programming and Algorithms And Introduction to C language

Semester I	Subject Code: BC11503	Lectures : 48
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Objectives:

The syllabus aims in equipping students with -

1. Developing Analytical / Logical Thinking and Problem Solving capabilities
2. Learning basic of principles of programming
3. Developing skills for writing basic programs using 'C'

Unit 1 : Introduction	7 Lects.
• Concept: problem solving, algorithm, Program development cycle	1
• Algorithm, characteristics of an algorithm	1
• Time complexity: Big-Oh notation (only introduction)	1
• Flowcharts	1
• Simple Examples: Algorithms and flowcharts	3

Name	Sign
Prof. Gautam Kudale	<i>Gautam Kudale</i>
Prof. Mahesh Pawar	<i>Mahesh Pawar</i>
Mr. Suraj Agarwal	<i>Suraj Agarwal</i>
Ms. Netra Jadhav	<i>Netra Jadhav</i>
Mrs. Smita Borkar	<i>Smita Borkar</i>
Mrs. Divya Chitre	<i>Divya Chitre</i>
Mrs. Monika Rajguru	<i>Monika Rajguru</i>
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Unit 2 Introduction to C Language:	7 lects
• History of C language and structure of C program	1
• Tokens, Keywords, Variables, Constants, Data types, Comments.	2
• Formatted input/output functions (printf(), scanf(), getch())	1
• Operators : Types of operators, Precedence,	2
• Statements: Types of Statements.	1

Unit 3 – Control Structures	10 Lects.
• Decision Making Structures: If, If-else, Nested-if-else, Switch.	4
• Looping Control Structures: While, Do-while, for, Nested loops.	4
• Other statements: break, continue, goto, exit.	2

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Unit 4 – Functions	10Lects.
• Concept, Function prototype.	2
• Parameter passing (call by value, call by reference)	2
• Recursion: Factorial, Fibonacci, Ackermann.	3
• Scope of Variables(local, global, static).	
• Storage of classes.	
• User-defined function, standard library function(math functions).	3

Unit 5 – Simple Arithmetic Problems	14 Lects.
• Addition / Multiplication of numbers.	1
• Determining if a number is +ve / -ve / even / odd	1
• Maximum of 2 numbers, 3 numbers	1
• Sum of first n numbers, given n numbers	2
• Integer division, Digit reversing, Table generation for n, ab	3
• Factorial, sine series, cosine series, nCr , Pascal Triangle	3
• Prime number, Factors of a number	3
• Other problems such as Perfect number, GCD of 2 numbers etc ○ (Write algorithms and draw flowcharts)	3



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Reference Books:

- Let us C –Yashwant Kanetkar, BPB publication 10th Edition 2010.
- Programming in C - Balguruswamy, Tata McGraw-Hill publication third edition 2004.
- How to solve it by computer- R.G.Promey 2012.
- Test your C skills - Yashwant Kanetkar, BPB publication.

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