

**Principles of Programming and Algorithms
And Introduction to C language**

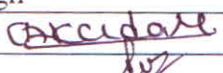

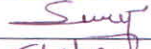



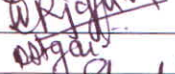


Semester I	Subject Code: BC11503	Lectures : 48
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Objectives:

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'

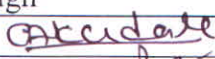

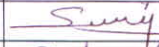
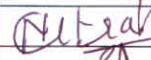
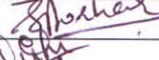

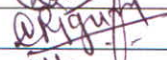
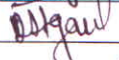

Unit 1 : Introduction	7 Lects.
• Concept: problem solving, algorithm, Program development cycle	1
• Algorithm, characteristics of an algorithm	1
• Time complexity: Big-Oh notation (only introduction)	1
• Flowcharts	1
• Simple Examples: Algorithms and flowcharts	3

Name	Sign
Prof. Gautam Kudale	
Prof. Mahesh Pawar	
Mr.Suraj Agarwal	
Ms. Netra Jadhav	
Mrs.Smita Borkar	
Mrs.Divya Chitre	
Mrs.Monika Rajguru	
Ms.Deepali Agarwal	
Mrs. Shubhangi Jagtap	



Unit 2 Introduction to C Language:	7 lects
<ul style="list-style-type: none"> • History of C language and structure of C program • Tokens, Keywords, Variables, Constants, Data types, Comments. • Formatted input/output functions (printf(), scanf(), getch()) • Operators : Types of operators, Precedence, • Statements: Types of Statements. 	<p>1</p> <p>2</p> <p>1</p> <p>2</p> <p>1</p>

Unit 3 – Control Structures	10 Lects.
<ul style="list-style-type: none"> • Decision Making Structures: If, If-else, Nested-if-else, Switch. • Looping Control Structures: While, Do-while, for, Nested loops. • Other statements: break, continue, goto, exit. 	<p>4</p> <p>4</p> <p>2</p>

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Unit 4 – Functions	10Lects.
<ul style="list-style-type: none"> • Concept, Function prototype. 	2
<ul style="list-style-type: none"> • Parameter passing (call by value, call by reference) 	2
<ul style="list-style-type: none"> • Recursion: Factorial, Fibonacci, Ackermann. 	3
<ul style="list-style-type: none"> • Scope of Variables(local, global, static). 	
<ul style="list-style-type: none"> • Storage of classes. 	
<ul style="list-style-type: none"> • User-defined function, standard library function(math functions). 	3

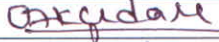

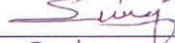



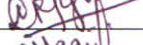

Unit 5 – Simple Arithmetic Problems	14 Lects.
<ul style="list-style-type: none"> • Addition / Multiplication of numbers. 	1
<ul style="list-style-type: none"> • Determining if a number is +ve / -ve / even / odd 	1
<ul style="list-style-type: none"> • Maximum of 2 numbers, 3 numbers 	1
<ul style="list-style-type: none"> • Sum of first n numbers, given n numbers 	2
<ul style="list-style-type: none"> • Integer division, Digit reversing, Table generation for n, ab 	3
<ul style="list-style-type: none"> • Factorial, sine series, cosine series, nCr , Pascal Triangle 	3
<ul style="list-style-type: none"> • Prime number, Factors of a number 	3
<ul style="list-style-type: none"> • Other problems such as Perfect number, GCD of 2 numbers etc <ul style="list-style-type: none"> ○ (Write algorithms and draw flowcharts) 	



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Mrs. Shubhangi Jagtap	<i>S.Jagtap</i>

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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