

B. Sc (Information Technology)	Semester – I	
Course Name: Imperative Programming	Course Code: USIT101	
Periods per week (1 Period is 50 minutes)		5
Credits		2
	Hours	Marks
Evaluation System	Theory Examination	2½
	Internal	--
		25

Unit	Details	Lectures
I	Introduction: Types of Programming languages, History, features and application. Simple program logic, program development cycle, pseudocode statements and flowchart symbols, sentinel value to end a program, programming and user environments, evolution of programming models., desirable program characteristics. Fundamentals: Structure of a program. Compilation and Execution of a Program, Character Set, identifiers and keywords, data types, constants, variables and arrays, declarations, expressions, statements, Variable definition, symbolic constants.	12
II	Operators and Expressions: Arithmetic operators, unary operators, relational and logical operators, assignment operators, assignment operators, the conditional operator, library functions. Data Input and output: Single character input and output, entering input data, scanf function, printf function, gets and puts functions, interactive programming.	12
III	Conditional Statements and Loops: Decision Making Within A Program, Conditions, Relational Operators, Logical Connectives, If Statement, If-Else Statement, Loops: While Loop, Do While, For Loop. Nested Loops, Infinite Loops, Switch Statement Functions: Overview, defining a function, accessing a function, passing arguments to a function, specifying argument data types, function prototypes, recursion, modular programming and functions, standard library of c functions, prototype of a function: foolal parameter list, return type, function call, block structure, passing arguments to a function: call by reference, call by value.	12
IV	Program structure: Storage classes, automatic variables, external variables, static variables, multifile programs, more library functions, Preprocessor: Features, #define and #include, Directives and Macros Arrays: Definition, processing, passing arrays to functions, multidimensional arrays, arrays and strings.	12
V	Pointers: Fundamentals, declarations, Pointers Address Operators, Pointer Type Declaration, Pointer Assignment, Pointer Initialization, Pointer Arithmetic, Functions and Pointers, Arrays And Pointers, Pointer Arrays, passing functions to other functions	12

	Structures and Unions: Structure Variables, Initialization, Structure Assignment, Nested Structure, Structures and Functions, Structures and Arrays: Arrays of Structures, Structures Containing Arrays, Unions, Structures and pointers.	
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Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Programming with C	Byron Gottfried	Tata McGRAW-Hill	2 nd	1996
2.	Programming Logic and Design	Joyce Farell	Cengage Learning	8 th	2014
3.	“C” Programming”	Brian W. Kernighan and Denis M. Ritchie.	PHI	2 nd	
4.	Let us C	Yashwant P. Kanetkar,	BPB publication		
5.	C for beginners	Madhusudan Mothe	X-Team Series	1 st	2008
6.	21 st Century C	Ben Klemens	OReilly	1 st	2012