GUJARAT TECHNOLOGICAL UNIVERSITY

Syllabus for Bachelor of Vocation (B.Voc), 1st Semester
Branch: Software Development
Subject Name: Programming in C
Subject Code: 1110203

With effective from academic year 2018-19

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
				Theory		Practical		
L	T	P	C	University exams (ESE)	Internal evaluation (PA)	External Practical /viva Exam(ESE)	Internal Practical /viva Exam(PA)	
3	-	-	3	50	-	-	-	50

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment

Content:

Sr. No.	Practical / Hands on Exercise	Hrs.
1	**Introduction to 'C' Language -** Character set, Variables and Identifiers, Built-in Data Types, Variable Definition, Arithmetic operators and Expressions, Constants and Literals, Simple assignment statement, Basic input/output statement, Simple 'C' programs.	6
2	**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, structured Programming.	7
3	**Arrays -** One dimensional arrays: Array manipulation; Searching, Insertion, Deletion of an element from an array; Finding the largest/smallest element in an array; Two dimensional arrays, Addition/Multiplication of two matrices, Transpose of a square matrix; Null terminated strings as array of characters, Standard library string functions	6
4	**Functions -** Top-down approach of problem solving, Modular programming and functions, Standard Library of C functions, Prototype of a function: Formal parameter list, Return Type, Function call, Block structure, Passing arguments to a Function: call by reference, call by value, Recursive Functions, arrays as function arguments.	8
5	**Storage Classes -** Scope and extent, Storage Classes in a single source file: auto, extern and static, register, Storage Classes in a multiple source files: extern and static	4
6	**Structures and Unions -** Structure variables, initialization, structure assignment, nested structure, structures and functions, structures and arrays: arrays of structures, structures containing arrays, unions	4
7	**Pointers -** Address operators, pointer type declaration, pointer assignment, pointer initialization, pointer arithmetic, functions and pointers, Arrays and Pointers, pointer arrays, pointers and structures, dynamic memory allocation.	4

8	**File Processing -** Concept of Files, File opening in various modes and closing of a file, reading from a file, writing onto a file	3
	Total	42

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks				
R Level	U Level	A Level	N Level	E Level
5	25	25	10	5

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate and above Levels (Bloom's Taxonomy)

Reference Books:

1. Programming in ANSI C by Balagurusamy
2. Let Us C, by Yashwant Kanetkar

Course Outcomes:

At the end of this subject, students should be able to:
1. Apply basic programming principles using C language.
2. Apply basic C program structure in software development
3. To understand different control structures in C.
4. To understand basic of array and string functions.
5. To understand user-defined functions.
6. To understand pointer, structure, dynamic memory allocation and file management.