SARDAR VALLABHBHAI PATEL EDUCATION SOCIETY'S

R. N. G. PATEL INSTITUTE OF TECHNOLOGY - RNGPIT

An Autonomous Institute u/s UGC Act 1956

Approved by AICTE & affiliated to Gujarat Technological University

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Program Name: Integrated M.Sc. (IT)

Level: Post Graduate

Branch: Information Technology

Subject Code : 2BS104

Subject Name : Introduction to Programming

w. e. f. Academic Year:	2025-2026
Semester:	1
Category of the Course:	Major Course

Prerequisite:	**NIL**
Rationale:	This course covers basic knowledge of C programming

Course Outcome:

After Completion of the Course, the Student will able to:

No	Course Outcomes
01	Describe the basics of programming language.
02	Develop logic using control structures like loops and conditionals.
03	Implement working with arrays, pointers, and strings in C.
04	Explore Structure and Unions in C.
05	Utilize functions, prototypes, and parameter passing in C.
06	Perform file I/O operations and handle errors in C.

Teaching and Examination Scheme:

Teaching Scheme (in Hours)			C Total Credits L+T+ (PR/2)	Assessment Pattern and Marks				Total Marks
L	**T**	**PR**	**C**	**Theory**		**Tutorial / Practical**		
				SEE (TH)	IAT	CCE	SEE (P)	
2	0	4	4	70	30	20	30	150

Where SEE: Semester End Examination, IAT: Internal Assessment Test, CCE: Continuous and Comprehensive Evaluation

Course Content:

Unit No.	Content	No. of Hours	% of Weightage
1.	**UNIT 1: Introduction to Programming & Fundamentals of C** 1.1 What is Programming? Concepts of Programming Language 1.1.1 Source Code, Object Code, and Executable Code 1.1.2 FlowCharts and Algorithms 1.1.3 Concepts of Machine level, Assembly level, and High-level Language 1.2 Features of C language 1.3 Concepts of Editor, Compiler and Interpreter 1.4 Structure of C program, comments, header files 1.5 Data Types, Variables 1.6 Tokens Identifier, Keywords, Constants, Strings, Operators, Precedence and Associativity, Special Characters 1.7 Expressions, Evaluation of Expressions 1.8 Type Conversion, 1.9 Basic I/O functions	4	15

Integrated M.Sc. (I.T.) Sem-1 Introduction to Programming

2.	**UNIT 2: Control Structures** 2.1 Simple statements 2.2 Decision-making statements 2.3 Looping statements 2.4 Nesting of control structures 2.5 Switch case 2.6 Break and Continue Statement 2.7 Goto statement	4	15
3.	**UNIT 3: Array and Pointer** 3.1 Concept of the array, One and Two-dimensional arrays 3.2 Declaration and initialization of arrays 3.3 Basics of pointers, pointer to pointer, pointer to the array, pointer to structure, array of pointer 3.4 Function returning a pointer 3.5 String functions	7	20
4.	**UNIT 4: Structure and Union** 4.1 Introduction to structure, structure members. 4.2 Dynamic memory allocation 4.3 Accessing structure members 4.4 Nested structures and Array of structures 4.5 Union	7	20
5.	**UNIT 5: Functions** 5.1 Introduction to function 5.2 User-defined functions and prototype 5.3 Parameters and Parameter Passing 5.4 Calling a function	4	15
6.	**UNIT 6: File Handling with C** 6.1 Defining and Opening a File- Closing File 6.2 I/O Operations on Files 6.3 Error Handling during I/O Operations	4	15
	Total	30	100

Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks(%)					
R Level	**U Level**	**A Level**	**N Level**	**E Level**	**C Level**
30	40	30	-	-	-

Where R: Remember; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create (as per Revised Bloom's Taxonomy)

References/Suggested Learning Resources:

(a) Books:
   1. Programming In ANSI C by E. Balagurusamy published by Tata Mc Graw Hill 2. Let Us C: Authentic Guide to C Programming Language by Yashwant Kanetkar published by BPB Publications
   3. C: How to Program, Deitel & Deitel - PHI
   4. Programming in C, Pradip Dey & Manas Ghosh – Oxford
   5. Programming for Problem Solving by Dr. S M. Shah and Dr. P. P. Kotak
      Mahajan Publishing House

(b) Open source software and website:
   1. Learn C (learn-c.org)
   2. spoken-tutorial.org

Suggested Course Practical List:

Sr. No.	Name of Practical
1	Write a C program to display "Hello World".
2	Write a C program to Calculate the Simple Interest.
3	Write a C Program to swap Two Numbers.
4	Write a C Program to print Prime Number from 1 to N (Number).
5	Write a C Program to find out the Factorial of a Number.
6	Write a C Program to Perform Addition, Multiplication, Division, and Subtraction on Given Two Numbers.
7	Write a C Program to Find out the Area of Circle.
8	Write a C Program to find the Greatest Number Among Three Numbers.
9	Write a C program to Check Whether a Number is Palindrome or not.
10	Write a C program to Check that Entered year is Leap year or not.
11	WAP to Check Whether a Character is a Vowel or Consonant. (Use Switch Case).
12	WAP to print the Half Pyramid.
13	WAP to print the Diamond Pattern.
14	WAP to print the following information of an employee using structure. Employee Details: (Display Minimum 5 Employee Details) Employee ID,Employee Name,Employee Address,Employee Salary

| 15 | Create a function to print addition, subtraction, multiplication, division arithmetic operation of two inputted numbers. |

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