AC –
Item No. –

As Per NEP 2020

Tolani College of Commerce (Autonomous)

Title of the Course: Imperative Programming

Programme: B.Sc(Information Technology) Semester I

Syllabus for 4 credit Course

From the academic year- 2024-2025

Name of the Course: Imperative Programming

Sr. No.	Heading	Particulars
1	**Description of the course**	C is an imperative procedural language, supporting structured programming, lexical variable scope, and recursion, with a static type system. It was designed to be compiled to provide low-level access to memory and language constructs that map efficiently to machine instructions, all with minimal runtime support.
2	**Vertical:**	Major
3	**Type:**	Theory and Practical
4	**Credit**:	4 credits (1 Credit = Theory and 1 Credit = Project Work)
5	**Hours Allotted:**	60 Hours
6	**Marks Allotted**:	100Marks Continuous Evaluation:40 Semester End Examination:60
7	**Course Objectives**: **1.** To enable students to understand C programming language and its concepts **2.** Write C Programs based on standalone applications **3.** To help students develop complex programming skills in C language **4.** To understand common data structures and algorithms used in imperative programming	
8	**Course Outcomes**: **1.** Understanding of Fundamentals of C programming language **2.** Implementation of C functions, arrays in C programs **3.** Student will be able to understand and apply practical concepts in C Programming **4.** Student will be able to debug and troubleshoot imperative programs.	

9	**Module1: Introduction to C, Fundamentals of C, Data Input and output. (15 Hours)**
	• Types of Programming languages, History, features and application. Simple program logic, program development cycle, pseudocode statements and flowchart symbols • 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 • Single character input and output, entering input data, scanf function, printf function, gets and puts functions.
	Module2: Operators, Expressions, Conditional Statements Loops and Program structure (15 Hours)
	• Arithmetic operators, unary operators, relational and logical operators, assignment operators, assignment operators, the conditional operator, library functions. • Decision Making Within A Program, Conditions, Relational Operators, Logical Connectives, If Statement, If-Else Statement. • Storage classes, automatic variables, external variables, static variables, multi file programs, more library functions.
	Module3: **Pre-processor** and **Functions (15 Hours)**
	• Features, #define and #include, Directives and Macros, Arrays • 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: parameter list, return type, function call, block structure, Passing arguments to a function: call by reference, call by value.
	Module4: **Pointers, Arrays, Unions (15 Hours)**
	• Fundamentals, declarations, Pointers Address Operators, Pointer Type Declaration, Pointer Assignment, Pointer Initialization, Pointer Arithmetic, Functions and Pointers, Arrays And Pointers • Structure Variables, Initialization, Structure Assignment, Nested Structure, Structures and Functions. • Unions, Basic Examples Modes, File Pointer and their Manipulation

11	**Reference Books:** • **Author:** Programming Logic and Design, **Title:** Joyce Farell, **Publisher**: Cengage • Learning, 8th Edition, **Year:** 2017 • Link: https://e-next.in/bsc-it/sem1/imperative-programming/	
12	**InternalContinuousAssessment:40%**	**Semester End Examination : 60%**
13	**Continuous Evaluation through:**	**Practical Assessment**
14	**Format of question paper:**	

Scheme of Evaluation Pattern
Table 1A: Scheme of Continuous Evaluation (CE/Practical)
Scheme of Evaluation Pattern

Sub-components	aximum Marks	Conditions for passing
1) Practical exam	30	a) A learner must be present for each of the sub-components.
2) Journal and Viva	10	
Total	40	

Table 1B: Scheme of Semester End Examination (SEE) Evaluation
Question Paper Pattern for Semester End Examination (SEE)
Maximum Marks: 60 **Duration: 2 Hrs.**

Note: All questions are compulsory. Each question has an internal choice.

Question Number		Nature of Questions	Maximum Marks
1)		**Attempt any Three**	
	a)		15
	b)		
	c)		
	d)		
	e)		
2)		**Attempt any Three**	15
	a)		
	b)		
	c)		
	d)		
	e)		
3)		**Attempt any Three**	15
	a)		
	b)		
	c)		
	d)		
	e)		
4)		**Attempt any Three**	15
	a)		
	b)		
	c)		
	d)		
	e)		