Ganpat University
॥ विद्यया समाजोत्कर्षः ॥

Faculty of Computer Applications

Programme	B.Sc. IT Honours (Artificial Intelligence & Machine Learning)	**Branch**	Computer Applications
Semester	II	**Version**	1.0.0.0
Effective from Academic Year	2026-27	**Effective for the batch Admitted in**	June 2026
Subject code	U82A1IP2	**Subject Name**	INTRODUCTION TO PROGRAMMING-II

Teaching scheme

(Per week)	Lecture (DT)		Practical (Lab.)		Total
	L	TU	P	TW	
Credit	2	-	2	-	4
Hours	2	-	4	-	6

Examination scheme(Marks)

	CCE	SEE	Total
Theory	50	50	100

Objective:

To gain detailed knowledge of Procedural Programming Language and basic understanding of OOPs fundamentals

Pre-requisites:

Fundamental knowledge of variables, data types, operators, decision making and looping statements

Learning Outcome:

Name of CO	Description
CO1	Understand the fundamentals and significance of user-defined functions.
CO2	Proficiently manipulate structures & unions.
CO3	Develop expertise in pointers.
CO4	Attain proficiency in dynamic memory allocation, pre-processor directives, program design, testing and debugging
CO5	Develop proficiency in OOPs concepts

Mapping of CO and PO:

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	1	1	1	1	1	2	0	1	0	0
CO2	2	2	1	1	1	1	1	2	0	0	0	0
CO3	2	2	1	1	1	1	1	2	0	0	0	1
CO4	2	2	1	1	1	1	1	2	0	0	0	0
CO5	2	2	1	1	1	1	1	2	1	1	1	2

Content:

Unit	Content	Hrs.
1	**User Defined Functions:** Need for user-defined functions, the form of C function, return values and their types, calling a function, category of functions, no arguments and no return values, arguments with return values, handling of non-integer functions, nesting of functions, recursion, function with arrays, the scope, visibility and lifetime of variables in functions	06
2	**Structures & Unions:** Structure definition, Assigning values into members, structure initialization, and comparison of structures, arrays of structures, arrays within structures, structures within structures, Introduction of Union. Difference between Structure and Union	06

3	**Pointers:** Introduction, understanding pointers, Accessing the address of variable, Declaring, and initializing pointers, accessing a variable through its pointer, Pointer expressions, Pointer increments and scale factor, Pointers and arrays, Pointers and character strings, Pointers and Functions, Pointers, and structures	06
4	**Dynamic Memory Allocation, Pre-processor and Debugging:** Introduction of Dynamic Memory Allocation, Dynamic Memory Allocation functions. Introduction of Pre-processor, Macro Substitution, File Inclusion, Compiler Control Directives, ANSI additions. Program design, Program coding, Common programming errors, Program testing and debugging, Program efficiency.	06
5	**OOPS Concepts (C++):** Class, Object, Constructor & Destructor, Inheritance, Abstract Classes	06

Practical Content:	
List of programs specify by subject teacher based on above mention topics.	
Reference Books:	
1	Programming in ANSI C by E Balagurusamy – TMH Publications – 2019
2	Programming in C by Pradip deyand ManashGhosh – Oxford University Press Publication – 2018
3	Let us 'C++' by Yashwant Kanetkar – BPB Publications – 2020
Web Reference:	
1	https://www.tutorialspoint.com/ansi_c/c_introduction.htm
MOOC/Certificate Course:	
1	https://www.coursera.org/specializations/c-programming
2	https://onlinecourses.nptel.ac.in/noc19_cs42/preview
Question Paper Scheme:	
	End Semester Examination Duration: (2 Hours Theory Examination) Note for Examiner: - Q-1 Any Five out of Seven (25 Marks) Q-2 Any Two out of Three (06 Marks) Q-3 Mandatory question (05 Marks) Q-4 Any Two out of Three (08 Marks) Q-5 Any Two out of Three(06 Marks) *The question paper must comprehensively address all Course Outcomes (COs), align with Bloom's Taxonomy levels, and ensure complete syllabus coverage.