



Integral University, Lucknow

Effective from Session: 2020-21

Course Code	CS101	Title of the Course	Computer Programming	L	T	P	C
Year	I	Semester	II	3	1	0	4
Pre-Requisite	None	Co-requisite	None				
Course Objectives	<ul style="list-style-type: none"> To give knowledge of computers, networks, algorithms & flowcharts. To provide fundamental concepts of programming language 'C'. To show the use of functions and pointers to different problems. To study the implementation of arrays, matrices and strings. To give concepts of user defined data types structure & union. 						

Course Outcomes

CO1	Understand basic concepts of computer, networks and formulation of algorithmic solutions to problems.
CO2	Understanding of programming concepts of C language and their implementation.
CO3	Analyze and develop programs on pointers and functions.
CO4	Develop programs on different operations on arrays, matrices & strings.
CO5	Implement programs on structure, union & Dynamic memory allocation.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	Introduction to Computers	Generation of computers, Characteristic and classifications of computers. Components of Computer: CPU, Various I/O Devices, Memory & its types, (Memory Hierarchy, Storage Media), Computer Software and their types, Operating System. Computer Networks & Communication: LAN, MAN, WAN, Network Topologies, Modes of Data Communication. Introduction to Internet and its Safeguard: Internet Addresses, Domain Name System, URL, Web Browsers Search Engines, Firewalls, Anti-Virus, Translators. Algorithm and flowchart: Algorithm and flow chart characteristics, Sketching Flowcharts of various problems.	9	1
2	Starting C	Standard I/O in 'C', 'C' Fundamental, C Character set, Constants, Variables, Keywords and Identifiers, Data types, Declaration. Operators and Expressions, Conditional statements (If, If-else), Nesting of if- else statement, switch statement, The? operator, goto statement. Decision making and Looping (While, Do-While, for), Break and Continue statements, Case Control Structures (Switch), C programs based on above concepts.	8	2
3	Introduction to pointers	Declaration and initialization of pointers, accessing the address of the variable, accessing the variable through the pointer, chain of pointers, pointers operators, pointer arithmetic Introduction to Functions: Need of "C" function, User Defined and Library Functions, Prototype of Function, Call by Value; Call by Reference; Nesting of Functions, Recursion. Pointers with function, C program based on above concept.	9	3
4	Array	Concept of One Dimensional and Multi-Dimensional arrays, Declaration, Operations: insert, delete, search, traverse, and merge, matrix operations, Sorting: Bubble sort, merge sort, insertion sort. Character array and strings: declaring and initializing strings variable, reading and writing a character, reading and writing strings from terminal, Arithmetic operations on characters, string handling functions. Application of pointers, and function on array, C program based on above concept.	10	4
5	Structures	Defining Structure, Declaration of Structure Variable, Accessing Structure members, copying and comparing structure variable, operation on individual member, nesting of structures, Array of structures. Application of pointers and function on Structures. Union Defining Union Declaration of Union, difference between structure and Union, Introduction of Static and Dynamic memory allocation- The process of Dynamic memory allocation, C program based on above concept.	8	5

Reference Books:

1. Foundation of Information Technology by 'D.S. Yadav' - New age International
2. Programming in 'C' by 'E Balagurusamy'. -TMH Publication.
3. Let us 'C' by 'Yashwant Kanitkar'-BPB Publication.
4. The C Programming Essentials by Dey- Pearson Publication.

e-Learning Source:

https://onlinecourses.nptel.ac.in/noc22_cs40/preview

PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2				3		3	2			2	3	2	
CO2	3	3	1			1		2				2	1	3	
CO3	3	2				2	3	2				3			3
CO4	3	2		2		3	2	2				1			3
CO5			1			1							1		3

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation