# PROGRAMMING FOR PROBLEM SOLVING

	Code	Category	Hours / Week			Credits	Maximum Marks		
A5CS01		ESC	L	Т	Р	С	CIA	SEE	Total
			3	3 -	-	3	30	70	100
COURSE O	BJECTIVES	8							
1. Toir	nnart know	ledge about problem so	lvina ar	nd alaa	orithmic	thinking			
	•	ith the syntax and sema	-	-		-	ne		
		age of structured progra			•	0 0	•		
		pointers, strings and str	•	•••		• •			
		now to solve problems r					nd sorting		
UNIT - I	INTRODU	JCTION - PROBLEM S	OLVING	G ANE	) ALGC	RITHMIC	THINKING	3	
Problem S	olving and	Algorithmic Thinki	ng Ove	erview	v — Pr	oblem De	finition, lo	ogical re	easoning
Algorithm de	finition, pra	ctical examples, proper	ties, rep	oresen	ntation, f	lowchart, a	algorithms	vs progr	ams.
A	Thinking	Constituents of a			Comuon	an Calant	اممه میما		
-	-	- Constituents of a	-		-			•	
-	-	expressions, logic; Pr, data organization: lists				-			
			s, arrays	5 610. 6	aigontin	ns to progr	anns.		
UNIT - II	OPERAT	ORS, EXPRESSIONS		ONTR			5		
		,							
Introduction	to C lan	guage: Structure of C							
		<b>Yuaye.</b> Shuthare of C	; progra	ams, (	data ty	oes, data	inputs, or	utput sta	tements
		and associativity, evalu					•	•	
Operators, p	recedence	and associativity, evalu	ation of	expre	essions,	type conve	ersions in	expressi	ons.
Operators, p <b>Control stru</b>	recedence J <b>ctures:</b> De	and associativity, evalu	ation of and swit	expre	essions, atement	type conve t; Loop coi	ersions in	expressi	ons.
Operators, p Control stru	recedence J <b>ctures:</b> De	and associativity, evalu	ation of and swit	expre	essions, atement	type conve t; Loop coi	ersions in	expressi	ons.
Operators, p <b>Control stru</b> and do while	recedence uctures: De loops, jum	and associativity, evalu ecision statements; if a p statements, break, co	ation of and swit	expre	essions, atement	type conve t; Loop coi	ersions in	expressi	ons.
Operators, p Control stru	recedence uctures: De loops, jum	and associativity, evalu	ation of and swit	expre	essions, atement	type conve t; Loop coi	ersions in	expressi	ons.
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of structures, structures and functions, self-referential structures, unions, typedef, enumerations.

**File handling**: command line arguments, File modes, basic file operations read, write and append, example programs

#### **TEXT BOOKS:**

- 1. Riley DD, Hunt K.A. Computational Thinking for the Modern Problem Solver. CRC press, 2014 Mar 27.
- 2. B.A. Forouzan and R.F. Gilberg C Programming and Data Structures, Cengage Learning, (3rd Edition)

## **REFERENCE BOOKS:**

- 1. W. Kernighan Brian, Dennis M. Ritchie, "The C Programming Language", PHI Learning, 2nd Edition, 1988.
- 2. Dey Pradeep, Manas Ghosh, "Computer Fundamentals and Programming in C", Oxford University Press, 2nd Edition, 2006.

## **COURSE OUTCOMES**

#### At the end of the course, student will be able to:

- 1. Apply algorithmic thinking to understand, define and solve problems
- 2. Develop computer programs using programing constructs and control structures
- 3. Decompose a problem into functions to develop modular reusable code.
- 4. Use arrays, pointers, strings and structures to formulate algorithms and programs.
- 5. Use files to perform read and write operations