

Course Information Sheet

Programme: UG	Degree: B.Tech (Common for all Branches)	
Course Code:	Course Title: Introduction to Programming	
Year: I Sem: I A.Y. : 2025-26	Regulation: IS23 College: ISTS (an Autonomous Institution)	
L T/P/D C: 3/0/0/3	Credits: 3	Contact Hrs: 5
Mid Marks: 30	External Marks: 70	Total Marks: 100
Teaching Hrs:	Exam Duration: 3 hrs.	

Course Information:

Course Code	Course Name	Description	Year-Sem
	Introduction to Profgramming	<ul style="list-style-type: none"> • To introduce students to the fundamentals of computer programming. • To provide hands-on experience with coding and debugging. • • To foster logical thinking and problem-solving skills using programming. • To familiarize students with programming concepts such as data types, control structures, functions, and arrays. • To encourage collaborative learning and teamwork in coding projects. 	I B.Tech (Common for All Branches) Semester -1



**INTERNATIONAL SCHOOL OF
TECHNOLOGY AND SCIENCES FOR WOMEN**
(An Autonomous Institution)

(Approved by AICTE New Delhi, Affiliated to JNTUK Kakinada, Accredited by NBA and NAAC with A+ Grade)

NH-16, East Gonagudem (V), Rajanagaram (M), Rajamahendravaram, East Godavari -533294

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Course outcomes:

Student will able to

SUBJECT : INTRODUCTION TO PROGRAMMING		
CO.NO	Course Outcomes	BT Level
After successful completion of this course students will be able to:		
C113.1	CO1: Understand basics of computers, the concept of algorithm and algorithmic thinking.	Understanding
C113.2	CO2: Analyse a problem and develop an algorithm to solve it.	Analysing
C113.3	CO3: Implement various algorithms using the C programming language.	Applying
C113.4	CO4: Understand more advanced features of C language.	Understanding
C113.5	CO5: Develop problem-solving skills and the ability to debug and optimize the code.	Applying

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO) and Program Specific Outcomes (PSO's):

Course Outcomes (CO)	Program Outcomes (PO)												Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PSO1	PSO2
C113.1	3	3	-	--	3	-	-	-	-	-	-	2	-	2
C113.2	3	2	2	-	3	-	-	-	-	-	-	2	-	2
C113.3	3	3	3	-	-	-	-	-	-	-	-	2	-	2
C113.4	3	2	2	-	-	-	-	-	-	-	-	2	-	2
C113.5	3	2	2	-	-	-	-	-	-	-	-	2	-	2
	3	2.4	2.5		3							2		2

3-Strongly linked | 2-Moderately linked | 1-Weakly linked

JUSTIFICATIONS OF CO –PO MAPPING

C113.1: Understand basics of computers, the concept of algorithm and algorithmic thinking (Understanding)

C113.1		
C113.1-P01	3	Undersdtanding computer peripherals
C113.1-P02	3	Gains knowledge on various types of operators, data types.
C113.1-P05	3	Designs solution for complex engineering problems using algorithm /flowchart
C113.1-P012	2	Explanation of concept of algorithm and algorithmic thinking

C113.2: Analyse a problem and develop an algorithm to solve it. (Analysing)

C113.2		
C113.2-P01	3	Applying the knowledge gained on looping/branching to solve the given problems.
C113.2-P02	2	Analyze the effectiveness of programming in solving the complex problems
C113.2-P03	2	Enables to solve the complex problems using programming techniques like branching/looping
C113.2-P05	3	Problem solving using modern tool usage
C113.2-P012	2	Problem solving and explanation using algorithm

C113.3: Implement various algorithms using the C programming language (Applying)

C113.3		
C113.3-P01	3	Gains Knowledge on different data types and apply them for problem solving.
C113.3-P02	3	Analyze the effectiveness of programming in solving the complex problems
C113.3-P03	3	Design solution for complex engineering problems
C113.3-P012	2	Ability to solve complex problems using various derived data types.



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C113.4: Understand more advanced features of C language (Understanding)

C113.4		
C113.4-P01	3	Apply the knowledge on creation, reading, writing text in binary files.
C113.4-P02	2	Identify and formulate complex problems to reach sustained results
C113.4-P03	2	Develop the ability to distinguish text and binary files, write simple C programs, and prioritize lifelong learning in the context of technological change
C113.4-P012	2	Enables to solve the complex problems using file handling techniques

C113.5: Develop problem-solving skills and the ability to debug and optimize the code (Analysing)

C113.5		
C113.5-P01	3	Apply appropriate searching /sorting technique to solve the complex problems.
C113.5-P02	2	Identify and formulate complex problems to reach sustained conclusions
C113.5-P03	2	Design the application with specified needs and appropriate considerations.
C113.5-P012	2	The application of algorithms for searching and sorting techniques is crucial for lifelong learning .Ability to apply the appropriate technique to solve complex problems

Syllabus & Lesson Plan

Sl.No	Unit	Topic	No. of Periods	Text Book / Reference Book	Teaching Aid Used / Methodology	Hours
INTRODUCTION TO PROGRAMMING AND PROBLEM SOLVING						
1	1	History of Computers, Basic organization of a computer	1	TB.1, RB.1	CHALK/TALK	14
2		Introduction to Programming Languages	1	TB.1,RB.1	CHALK/TALK	
3		Basics of a Computer Program- Algorithms, flowcharts (Using Dia Tool), pseudo code	1	TB.1, RB.1	CHALK/TALK	
4		Introduction to Compilation and Execution	1	TB.1, RB.1	CHALK/TALK	
5		Primitive Data Types, Variables, and Constants	1	TB.1, RB.1	PPT	
6		Basic Input and Output, Operations	1	TB.2, RB.1	CHALK/TALK	
7		Type Conversion, and Casting, Command line arguments	1	TB.1, RB.1	CHALK/TALK	
8		Precedence and Associativity rules, keywords, C-operators, sample Programmes	1	TB.1, RB.1	CHALK/TALK	
9		Problem solving techniques: Algorithmic approach, characteristics of algorithm	2	TB.1, RB.1	CHALK/TALK	
10		Problem solving strategies: Top-down approach, Bottom-up approach	2	TB.1, RB.2	CHALK/TALK	
11		Problem solving techniques:	2	TB.1, RB.1	CHALK/TALK	

		Algorithmic approach, characteristics of algorithm				
CONTROL STRUCTURES						
12	2	Simple sequential programs	2	TB.1, RB.1	CHALK/TALK	11
13		Conditional Statements (if, if-else, nested-if, ladder else-if, switch)	2	TB.1, RB.2	CHALK/TALK	
14		Loops (for, while, do- while)	2	TB.1, RB.1	CHALK/TALK	
15		Break and Continue, goto	2	TB.1, RB.1	PPT	
16		some sample Programmes	3	TB.1, RB.1	CHALK/TALK	
ARRAYS AND STRINGS						
17	3	Arrays indexing, memory model	1	TB.1, RB.1	CHALK/TALK	9
18		programs with array of integers	2	TB.1, RB.1	CHALK/TALK	
19		two dimensional arrays	2	TB.1, RB.1	CHALK/TALK	
20		Introduction to Strings	2	TB.1, RB.1	PPT	
21		String handling functions	2	TB.1, RB.1	CHALK/TALK	
POINTERS & USER DEFINED DATA TYPES						
22	4	Pointers	2	TB.1, RB.1	CHALK/TALK	15
23		dereferencing and address operators	2	TB.1, RB.1	CHALK/TALK	
24		pointer and address arithmetic	2	TB.1, RB.1	PPT	
25		array manipulation using pointers	2	TB.1, RB.1	CHALK/TALK	
26		User-defined data types- Structures and Unions	2	TB.1, RB.1	CHALK/TALK	
27		Defining and declaring Structure	2	TB.1, RB.1	CHALK/TALK	
28		Accessing the members using Structure variables	1	TB.1, RB.1	CHALK/TALK	

29		union, Enumerated data Types	2	TB.1, RB.1	CHALK/TALK	
FUNCTIONS & FILE HANDLING						
30	5	Introduction to Functions, Function Declaration and Definition	1	TB.1, RB.2	CHALK/TALK	12
31		Function call Return Types and Arguments	1	TB.1, RB.2	CHALK/TALK	
32		modifying parameters inside functions using pointers	2	TB.1, RB.2	CHALK/TALK	
33		arrays as parameters	2	TB.1, RB.2	CHALK/TALK	
34		Passing Structures to the functions Local Variables, Global Variables, Storage classes	1	TB.1, RB.2	PPT	
35		Basics of File Handling functions	2	TB.1, RB.2	CHALK/TALK	
36		Definition file, Sequential files	2	TB.1, RB.2	CHALK/TALK	
37		Random Access Files, File handling functions	1	TB.1, RB.2	CHALK/TALK	

Total Number of Hours: 61

Topic Beyond Syllabus:

S.No.	Topic Beyond Syllabus Planning	PERIODS	Methodology	Text book/references/web references and additional text book reference
1	Problem solving strategies and Problem solving techniques	2	Assignment	T1, T2
2	Arrays, Pointers and Functions	2	Assignment	

Justification for Topic Beyond the Syllabus (TBS) -PSO Mapping.

Mapping	Level	Justification
TBS-PSO1	--	PPT
TBS-PSO2	--	PPT

Note: Bloom's Taxonomy Levels

BTL1-Remember	BTL2 – Understand	BTL3 –Apply
BTL4-Analyze	BTL5 –Evaluate	BTL6–Create

Text books (T) / Reference books (R)/Additional text books (A):

Textbooks:

- "The C Programming Language", Brian W. Kernighan and Dennis M. Ritchie, Prentice- Hall, 1988
- Schaum's Outline of Programming with C, Byron S Gottfried, McGraw-Hill Education, 1996

Reference Books:

1. Computing fundamentals and C Programming, Balagurusamy, E., McGraw-Hill Education, 2008.
2. Programming in C, Rema Theraja, Oxford, 2016, 2nd edition
3. C Programming, A Problem Solving Approach, Forouzan, Gilberg, Prasad, CENGAGE, 3rd edition

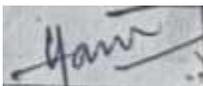
Web References	
WR1	https://www.w3schools.com/c/c_intro.php
WR2	https://www.geeksforgeeks.org/c-programming-language/
WR3	https://www.tutorialspoint.com/cprogramming/index.htm
WR4	https://www.guru99.com/c-programming-language.html
WR5	https://byjus.com/gate/introduction-to-c-programming/
WR6	https://www.freecodecamp.org/news/the-c-programming-handbook-for-beginners/

ASSESSMENT METHODOLOGIES-DIRECT

<input checked="" type="checkbox"/> ASSIGNMENTS	<input checked="" type="checkbox"/> STUD. SEMINARS	<input checked="" type="checkbox"/> TESTS/MODEL EXAMS	<input checked="" type="checkbox"/> UNIV. EXAMINATION
<input type="checkbox"/> STUD. LAB PRACTICES	<input type="checkbox"/> STUD. VIVA	<input type="checkbox"/> MINI/MAJOR PROJECTS	<input type="checkbox"/> CERTIFICATIONS
<input type="checkbox"/> ADD-ON COURSES	<input type="checkbox"/> OTHERS		

ASSESSMENT METHODOLOGIES-INDIRECT

<input checked="" type="checkbox"/> ASSESSMENT OF COURSE OUTCOMES (BY FEEDBACK, ONCE)	<input checked="" type="checkbox"/> STUDENT FEEDBACK ON FACULTY (TWICE)
<input type="checkbox"/> ASSESSMENT OF MINI/MAJOR PROJECTS BY EXT. EXPERTS	<input type="checkbox"/> OTHERS



Prepared by



Approved by