COURSE HANDOUT

INTRODUCTION TO C PROGRAMMING (COM-101)

CSE–1ST SEMESTER

ACADEMIC YEAR (2024-25)

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Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
							Sessional	Final Exam	Total
COM-101	Introduction to C Programming	ESC	5	4	1	0	50	100	150

COURSE OUTCOMES

At the end of the course the student will be able to:	
CO1	Design flowcharts, algorithms and pseudocode for solving problems.
CO2	Understand the syntax and semantics of C programs and use them to translate the algorithms into programs.
CO3	Decompose a problem into functions and synthesize a complete program using divide and conquer approach.
CO4	Debug and test programs to evaluate program correctness.
CO5	Implement derived and user-defined data types and files in C programming for a given application.

Unit-I

Introduction to Programming: Evolution of Programming Languages, Structured Programming, Compilation Process, Object Code, Source Code, Executable Code, Operating Systems, Fundamentals of Algorithms, Flow Charts and Pseudocodes.

(6 Hours)

Unit-II

Introduction to C: Introduction, Importance of C, Sample C Programs, Basic Structure of C Programs, Executing a C program, Character Set, Keywords, Identifiers, Constant and Variables, Data Types, Operators, Precedence of Operators, Statements, Expressions, Input-Output Functions.

(8 Hours)

Unit-III

Control statements, storage classes, library functions: Control structures: Decision making and Branching, Control Structures: Decision making & looping, Storage Classes: Types of storage class, scoping rules, standard Library functions, advantages and their use (I/O functions, string, character, mathematics, time and date functions)

(12 Hours)

Unit-lV

User-Defined Functions, Arrays, Recursion, Handling of Character Strings, Structures, Unions, User Defined and Standard Functions, Formal and Actual Arguments, Functions Category, Function Prototypes, Parameter Passing, Call-by-value, Call-by-reference, Nested Functions, Recursion, One Dimensional Array, Multidimensional Array declaration and their applications, Passing Array to a Function, String Manipulation, Declaration of Structures, Declaration of Unions, Pointer to Structure &Unions.

(12 Hours)

Unit-V

Pointers, Dynamic Memory Allocation, File Management in C, Pointer Variable and its importance, Pointer Arithmetic, Passing parameters by reference, Pointer to Pointer, Pointer to Functions, Dangling Pointer, Dynamic Memory Allocation, Console input output functions, Disk Input Output Functions, Opening, closing and Creating Data Files.

(10 Hours)

Textbooks

S.No	Name of the Books	Name of the Author	Publisher Name	Edition (Pub.Yr.)
1	Programming in ANSI C	E. Balagurusamy	McGraw Hill Education	8th (2019)
2.	Programming with C	Byron Gottfried	McGraw Hill Education	4th(2018)
3.	C Programming Language	Brian W. Kernighan, Dennis M. Ritchie	Pearson	2nd (2015)

Reference Books

S.No	Name of the Books	Name of the Author	Publisher Name	Edition (Pub.Yr.)
1	C - The Complete Reference	Herbert Schildt	McGraw Hill Education	4th(2017)
2	C - How to Program	Paul J. Deitel	Pearson	8th (2015)
3.	Let us C	Yashavant P. Kanetkar	BPB Publications	5th (2015)

COURSE PLAN		
Unit-I Introduction to Programming		
S No	**Topics**	**Recommended Books**
1	Evolution of Programming Languages	Book 4, Chapter 1
2	Structured Programming	Book 1, Chapter 2,3
3	Compilation Process	Book 1, Chapter 4 ,5
4	Operating Systems	Book 4, Chapter 3
5	Fundamentals of Algorithms, Flow Charts and Pseudocode	Book 1 , Chapter 1
Unit-II Introduction to C		
1	Introduction, Importance of C	Book 1, and Chapter 1
2	Sample C Programs, Basic Structure of Programs	Book 2, Chapter 1
3	Executing a C Program, Character Set, Keywords, Identifiers	Book 1, Chapter 1,2
4	Constant and Variables, Data Types, Operators	Book 3, Chapter2
5	Precedence of operators	Book 1, Chapter 3
6	Statements, Expressions, Input-Output Functions	Book 1, Chapter 3
Unit-III Control Statements and Storage Classes		
1	Control Statements	Book 1, Chapter 3
2	Library functions	Book 1, Chapter 5
3	Control Structures: Decision Making and Branching, Looping	Book 1, Chapter 3
4	Storage Classes, Types of Storage Class, Scoping Rules	Book 2, Chapter 6
5	Standard Library Functions, Advantages and Uses	Book 2. Chapter 7
6	String, Character, Mathematics, Time and Date functions	Book 1, Chapter 5
Unit-IV Functions, Arrays, Structures and Unions		
1	User-defined and Standard Functions	Book 3, Chapter 5

2	Formal and Actual Arguments, Functions Category, Function Prototypes	Book 1,Chapter 4
3	Parameter Passing, Call-by-Value, Call-by-Reference	Book 3, Chapter 5
4	Nested functions, Recursion,	Book 4, Chapter 11
5	One Dimensional Array, Multidimensional Array and their applications	Book 2, Chapter 5
6	Passing array to a Function, String Manipulation	Book 2, Chapter 5
7	Structures, Unions, Pointer to Structure & Unions.	Book 2, Chapter 6
Unit-V Pointers, Dynamic Memory Allocation and File Management		
1	Pointers, Dynamic Memory Allocation	Book 1, Chapter 7
2	Pointer Variable and its Importance, Pointer Arithmetic	Book 1, Chapter 7
3	Passing Parameters by Reference	Book 2,Chapter 4
4	Pointer to pointer,Pointer to Functions, Dangling Pointer	Book 1,Chapter 7
5	Console Input Output Functions, Disk Input Output Functions,Opening Closing and Creating Data Files	Book 1, Chapter 5

ADDITIONAL WEB RESOURCES

1.	**MOOC:** Problem Solving through Programming in C, IIT Kharagpur. https://coursera.org/learn/c-for-everyone
2.	**VLab Link:** Virtual C Programming Lab so that students can learn and practice various topics of C. http://cse02-iiith.vlabs.ac.in/
2.	**NPTEL:** Problem Solving through Programming in C, IIT Kharagpur. https://nptel.ac.in/courses/106/105/106105171/
3.	**Creately Tool:** https://creately.com/lp/uml-diagram-tool/

GRADING AND ASSESSMENT

- **Sessional Test**: 20 marks
- **Assignment**: 20 marks
- **Attendance**: 10 marks
- **Final Examination**: 100 marks

COURSE POLICIES

- **Attendance**: Minimum 75% attendance is mandatory to appear in the final examination of the course.
- **Academic Integrity**: MIET's academic integrity policies apply. Plagiarism will not be tolerated.
- **Late Submissions**: Assignments and projects must be submitted by the specified timelines.

FACULTY INFORMATION

- **Office Hours**

  Tuesday - Thursday (02:35 PM - 03:25 PM)

- **Contact Information**
  annusonania.cse@mietjammu.in