Department of Computer Science and Engineering
Lesson Plan

Course Title: Programming Fundamentals   **Course Code:** CSE 1113
Year/Semester: 1/1   **Section:** A, B
Contact Hours: 42   **Credit:** 03
Course Type: Core Course   **Status:** Theory
Prerequisite: None

Instructor: Mohammad Hasan
                Assistant Professor, DCSE, PU.
Class schedule:

Section-A	Section-B
Saturday (8:30 am-9:45 am) (Room- 411) Monday (11:00 am-12:15 pm) (Room- 902)	Sunday (12:15 pm-1:30 pm) (Room- 903) Wednesday (11:00 am-12:15 pm) (Room- 411)

Counseling Time:
Saturday, 9:45 am - 11:00 am (A, B)
Monday, 12:15 pm - 1:30 pm (A, B)
Room No.: 607
Email Address: mehedipucse@gmail.com   **Phone No.:** 01921009559

Course Rationale:
This course will introduce the fundamental principles, mechanism of programming to develop basic programming skills.

Course Objectives:

The objectives of the course are
1. To introduce students with the syntax and semantics of programming language.
2. To help students to analyze and design programs to solve different problems using different library functions of a programming language. (Rewrite the statements, analyze the problem, design the solutions)
3. To learn the use of user-defined functions and data types for designing program.
4. To learn the foundational skills of adapting a new programming language.

Course Learning Outcomes (CLOs):
Upon successful completion of this course, students will be able to

CLO1	**Describe (C2)** basic programming approaches with data types, input and output operations.

CLO2 **Write (C3)** various programming structures such as conditional statements, looping statements etc. for solving specific problems.

CLO3 **Write (C3)** user-defined functions and data types, and derived data types for solving a specific problem.

Textbooks:

1. **Programming in ANSI C**: *E. Balagurusamy* (Latest version) (Refer as **T1**)
2. **Programming with C**: *Schaum's Outline* (Latest version) (Refer as **T2**)

References book:
1. **Teach Yourself C**: *Herbert Schild*
2. **The C programming Language**: *C Kernighan & D.M. Ritchie*

Teaching Strategy: Typical methodologies are Class lectures, web-access, problem formulation, and presentation.

Marks Distribution: Class attendance (10%), quiz/assignments/homework (10%), Class test (20%), Midterm-exam (20%), and final-exam (40%).

Mapping of Course Outcomes to Program Outcomes-

	PLO(a)	PLO(b)	PLO(c)	PLO(d)	PLO(e)	PLO(f)	PLO(g)	PLO(h)	PLO(i)	PLO(j)	PLO(k)	PLO(l)
CLO1	√											
CLO2	√											
CLO3	√											

Class schedule:

Day	Topic	Teaching strategy	Resources/ Facilities	Course Learning Outcome	Assessment Strategy
1	Introduction, Design of a program; Compilers, interpreters, and IDE; Flow charts.	PPT Slides presentation	T2: Chapter-1, PPT, Multimedia Projector, Laptop/Desktop PC, Whiteboard, Markers	CLO1	Class Test-1

2	Introduction, Design of a program; Compilers, interpreters, and IDE; Flow charts.	PPT Slides presentation	T2: Chapter-1, PPT, Multimedia Projector, Laptop/Desktop PC, Whiteboard, Markers	CLO1	Class Test-1
3	Character set, Identifier, Keyword, Data types and variables, Expression, and statement.	Lectures/ Whiteboard	T1: Chapter-2, T2: Chapter-2, Whiteboard, Markers	CLO1	Class Test-1
4	Different types of Operators (Arithmetic op., Unary op.), Type conversion in Expression, Operator precedence and associativity.	Lectures/ Whiteboard	T1: Chapter-3, T2: Chapter-3, Whiteboard, Markers	CLO1	Class Test-1
5	Different types of Operators (Relational op., Logical op., Assignment op.), Operator precedence and associativity,	Lectures/ Whiteboard	T1: Chapter-3, T2: Chapter-3, Whiteboard, Markers	CLO1	Class Test-1
6	Different types of Operators (Bitwise op., Conditional/Ternary op.), Operator precedence and associativity, Library Function.	Lectures/ Whiteboard	T1: Chapter-3, T2: Chapter-3, Whiteboard, Markers	CLO1	Class Test-1
7	Standard input and output : Standard input (getchar( ), gets( ), scanf( )), formatted input.	Lectures/ Whiteboard	T1: Chapter-4, T2: Chapter-4, Whiteboard, Markers	CLO1	Class Test-1
8	Standard input and output : Standard output (putchar( ), puts( ), printf( )), formatted output.	Lectures/ Whiteboard	T1: Chapter-4, T2: Chapter-4, Whiteboard, Markers	CLO1	Class Test-1
9	Conditional Statements: If-else, Nested If-else, Else-if Ladder	Lectures/ Whiteboard	T1: Chapter-5, T2: Chapter-6, Whiteboard, Markers	CLO2	Mid Term, Final Exam
10	Conditional Statements: Switch-case	Lectures/ Whiteboard	T1: Chapter-5, T2: Chapter-6, Whiteboard, Markers	CLO2	Mid Term, Final Exam

11	Looping Statements: syntax of for, while, do-while,	Lectures/ Whiteboard	T1: Chapter-5, T2: Chapter-6, Whiteboard, Markers	CLO2	Mid Term, Final Exam
12	Looping Statements: Problems related to loops, break, and continue statements.	Lectures/ Whiteboard	T1: Chapter-5, T2: Chapter-6, Whiteboard, Markers	CLO2	Mid Term, Final Exam
13	Looping Statements: Nested loops	Lectures/ Whiteboard	T1: Chapter-5, T2: Chapter-6, Whiteboard, Markers	CLO2	Mid Term, Final Exam
14	Review on Midterm topics	Lectures/ Whiteboard	T1: Chapter-2, 3, 4, 5, T2: Chapter-1, 2, 3, 4, 6, Whiteboard, Markers		
15	**Arrays**: Definition of array, properties of array, defining and processing a 1D array, array related problems.	PPT Slides presentation/ Lectures/ Whiteboard	T1: Chapter-7, T2: Chapter-9, PPT, Multimedia Projector, Laptop/Desktop PC, Whiteboard, Markers	CLO3	Class Test -2, Final Exam
16	**Arrays**: 1D array related problems	PPT Slides presentation/ Lectures/ Whiteboard	T1: Chapter-7, T2: Chapter-9, PPT, Multimedia Projector, Laptop/Desktop PC, Whiteboard, Markers	CLO3	Class Test -2, Final Exam
17	**Arrays**: Defining and processing a 2D array, 2D array related problems.	PPT Slides presentation/ Lectures/ Whiteboard	T1: Chapter-7, T2: Chapter-9, PPT, Multimedia Projector, Laptop/Desktop PC, Whiteboard, Markers	CLO3	Class Test -2, Final Exam

18	**Strings:** Defining and processing a string, difference between array and string, Library function of string (strlen( ), strcpy( ), strcat( ), strcmp( )), string related problems.	PPT Slides presentation/ Lectures/ Whiteboard	T1: Chapter-8, T2: Chapter-10, PPT, Multimedia Projector, Laptop/Desktop PC, Whiteboard, Markers	CLO3	Class Test -2, Final Exam
19	**Functions:** Definition of function and its elements, library functions and user-defined, Defining and accessing a function, functions related problems.	PPT Slides presentation/ Lectures/ Whiteboard	T1: Chapter-9, T2: Chapter-7, PPT, Multimedia Projector, Laptop/Desktop PC, Whiteboard, Markers	CLO3	Final Exam
20	**Functions:** passing an array in function, passing a string in function, function prototype.	PPT Slides presentation/ Lectures/ Whiteboard	T1: Chapter-9, T2: Chapter-7, PPT, Multimedia Projector, Laptop/Desktop PC, Whiteboard, Markers	CLO3	Final Exam
21	**Functions:** Definition of recursion function and its properties, recursion related problems	PPT Slides presentation/ Lectures/ Whiteboard	T1: Chapter-9, T2: Chapter-7, PPT, Multimedia Projector, Laptop/Desktop PC, Whiteboard, Markers	CLO3	Final Exam
22	**Pointers:** Definition of pointer and its properties,operations on pointers, pointer variables, Pointers and arrays, Dynamic memory allocation	PPT Slides presentation/ Lectures/ Whiteboard	T1: Chapter11, T2: Chapter-11, PPT, Multimedia Projector, Laptop/Desktop PC, Whiteboard, Markers	CLO3	Class Test -3, Final Exam
23	**Pointers:** pointer and array, array of pointer, pointer as function argument, function returning pointer	PPT Slides presentation/ Lectures/ Whiteboard	T1: Chapter-11, T2: Chapter-11, PPT, Multimedia Projector, Laptop/Desktop PC, Whiteboard, Markers	CLO3	Class Test -3, Final Exam

24	**Structure and Union:** defining a structure, processing a structure, passing structures to functions	PPT Slides presentation/ Lectures/ Whiteboard	T1: Chapter-10, T2: Chapter-12, PPT, Multimedia Projector, Laptop/Desktop PC, Whiteboard, Markers	CLO3	Final Exam
25	**Structure and Union:** defining an union, processing an union, Structure vs Union	PPT Slides presentation/ Lectures/ Whiteboard	T1: Chapter-10, T2: Chapter-12, PPT, Multimedia Projector, Laptop/Desktop PC, Whiteboard, Markers	CLO3	Final Exam
26	**File:** opening and closing a file, creating a file, processing a file. Review on Final exam topics	PPT Slides presentation/ Lectures/ Whiteboard	T1: Chapter-12, T2: Chapter-13, PPT, Multimedia Projector, Laptop/Desktop PC, Whiteboard, Markers	CLO1	Assignment, Final Exam
27	Review on Final exam topics	Lectures/ Whiteboard	T1: Chapter-7, 8, 9, T2: Chapter-7, 9, 10, Whiteboard, Markers		
28	Review on Final exam topics	Lectures/ Whiteboard	T1: Chapter-10, 11, 12, T2: Chapter-11, 12, 13, Whiteboard, Markers		

Mapping of Levels of Bloom's Taxonomy with skills:

CLOs	Description	Levels of Bloom's Taxonomy	Skill
CLO1	**Describe (C2)** basic programming approaches	**C2**	Low-order

	with data types, input and output operations.		
CLO2	**Write (C3)** various programming structures such as conditional statements, looping statements etc. for solving specific problems.	**C3**	Low-order
CLO3	**Write (C3)** user-defined functions and data types, and derived data types for solving a specific problem.	**C3**	Low-order

Domains and Levels of Bloom's Taxonomy:

* "Cognitive" Domain (C): C1 - Recall data, C2 - Understand, C3 - Apply, C4 - Analysis, C5 - Synthesize, and C6 - Evaluate.

* "Affective" Domain (A): A1 - Receive, A2 - Respond, A3 - Value, A4 - Organize personal value system, and A5 - Internalize value system.

* "Psychomotor" Domain (P): P1 - Imitation, P2 - Manipulation, P3 - Develop precision, P4 - Articulation, and P5 - Naturalization.