



MEHRAN UNIVERSITY OF ENGINEERING AND TECHNOLOGY JAMSHORO

Department of Civil Engineering



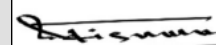
LESSON PLAN

COURSE TITLE: Computer Programming		COURSE CODE: CE141	CREDIT HOURS: 02	MINIMUM CONTACT HOURS: 32
COURSE INSTRUCTOR: Dr. Fahad Rehman Abro (A+B+C)				
Batch: 24CE	Semester: 2nd	Semester Starting Date: 06-01-2025	Semester Suspension Date: 24-04-2025	
COURSE LEARNING OUTCOMES:				
CLO No.	Description	Taxonomy level	Associated PLO	
1	APPLY basic programming concepts, including variables, control flow statements, and functions, to solve simple computational problems using a high-level programming language	C3	2	
2	DEMONSTRATE the ability to clean, analyze, and visualize structured data using Python libraries such as NumPy, Pandas, Matplotlib, and Seaborn.	C4	5	
LESSON CONTENTS AND ASSOCIATED CLO(s)				
Contents	CLO No.	Marks Assigned	Delivery Methods	Assessment Methods (Marks)
<ul style="list-style-type: none">• Computational Thinking, Introduction to Computers and Programming• What is a Computer?, Programming Languages: High-level vs. low-level languages Introduction to popular programming languages (e.g., Python, C, Java)• How Computers Understand Programs:• Introduction to an Integrated Development Environment (IDE), Basic Algorithms: Introduction to the concept of algorithms and their role in solving problems.• Basic Programming Concepts: Syntax and Semantics: Basic structure of a program, Understanding comments and documentation, Variables and Data Types:, Primitive data types (int, float, char, boolean, string), Declaring and initializing variables, Operators: Arithmetic, relational, logical, and assignment operators, Input/Output: Reading input from the user, Displaying output to the screen• Control Flow Statements: Conditional Statements, Loops,• Functions and Modular Programming• Arrays and Data types• No. of Lectures Required: 16	1	24	<ul style="list-style-type: none">• Class Lecture• Discussion	<ul style="list-style-type: none">• Assignment (04)• Mid semester Exam (15)• Final Exam (05)

<ul style="list-style-type: none"> • Introduction to Data Science • Overview of data science and its applications, Role of programming in data analysis • Data Types and Structures: Structured vs. unstructured data, Introduction to tabular data (rows and columns). Data Science Workflow: Data collection, cleaning, analysis, visualization, and interpretation Working with Data using Python: Basic Libraries for Data Science: NumPy for numerical computations, Pandas for data manipulation, Data Loading and Preprocessing: Importing data from CSV or Excel files, Handling missing data, Basic data cleaning and transformations, Exploratory Data Analysis (EDA):, Descriptive statistics (mean, median, mode, standard deviation), Data summarization using Pandas, o Data Visualization: Introduction to Matplotlib and Seaborn, Plotting basic graphs (line, bar, histogram, scatter) Object-Oriented Programming (OOP) Basics (if applicable to the language) o Introduction to OOP: Concepts of classes and objects, Attributes and Methods: Defining and accessing attributes and methods Error Handling and Debugging Types of Errors, Debugging Techniques, Exception Handling Introduction to Algorithms and Problem Solving Basic Algorithmic Techniques, Time and Space Complexity (Basic introduction), No. of Lectures Required: 16 	2	26	<ul style="list-style-type: none"> • Class Lecture • Discussion 	<ul style="list-style-type: none"> • Final Exam (15) • Class Test (7) • Assignment (04)
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ASSESSMENT DETAILS

S. #	Assessment Activities	Marks	Activities	CLO(s) to be assessed
1	Assignment/Class Test	15	Assignment(s)	2
			Class Test	1
2	Mid Semester Exam	15	1	1
3	Final Semester Exam	20	1	1 & 2

Prepared by: Dr. Fahad Rehman Abro Signature:  Dated: 04-02-2025	Reviewed by: Curriculum Review Committee Signature:  Dated: 10-02-2025	Approved by: Chairman, CED Signature:  Dated: 10-02-2025
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