

Lesson Plan:- Programming with Python (CSEPC 203 TH:2)

3rd Semester CSE- Winter 2025

Name of the Faculty-Mousumi Subudhi

Date-14th July 2025

Unit I– Introduction to Python (8 Classes)	
1	Concept of python
2	Features and Applications of Python
3	Setting Up the Python Environment
4	Python Installation, IDEs
5	Python Syntax: Variables, Data Types
6	Operators Writing, Executing
7	Debugging Python Scripts
8	Simple Programs using variable, datatype in python
Unit II–Control Structures and Functions (8 Classes)	
9	Concept of Conditional Statements in python
10	if, else, elif syntax and use in programming
11	Loops: for, while, and Nested Loops
12	Programs practice using loops
13	Functions Defining, calling, Scope of Variables
14	Programs using function
15	Introduction to Lambda Functions
16	Recursion function
Unit III–Data Structures in Python: (8 Classes)	
17	Lists, Tuples, Sets
18	Programs using list
19	Tuple characteristics, creation, access tuple items
20	Examples on set in python
21	List Comprehensions and Dictionary Comprehensions Working with Strings

22	Methods and Manipulation,
23	Introduction to Python's Collections Module
24	Examples
Unit IV–File Handling and Modules (7 Classes)	
25	Concept of File, module
26	File Operations, Reading, Writing
27	Appending Files Working with CSV Files
28	Working with JSON Files
29	Python Modules Built-In Modules (e.g., math, os, datetime)
30	Creating and Using Custom Modules
31	Examples and Programs
Unit V– Object-Oriented Programming (OOP) in Python: (7 Classes)	
32	Understanding Classes and Objects
33	Concepts of Encapsulation
34	Programs using class, object in python
35	Concept of inheritance, Types of inheritance
36	Programs using inheritance
37	Polymorphism concept Operator Overloading
38	Exception Handling in Python
Unit VI–Advanced Python and Applications (7 Classes)	
39	Introduction to Libraries: NumPy, Pandas, Matplotlib
40	Programs using libraries
41	Basics of Web Scraping: Using requests,
42	BeautifulSoup
43	Scripting for Automation: Working with os
44	Mini-Project: Developing a Python Script for a Real-World Problem
45	Create python project

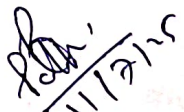
M. Subramani
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BRANCH: CSE	SEMESTER: 3 rd	NAME OF THE TEACHING FACULTY: Mrs. MOUSUMI SUBUDHI
SUBJECT: DATA STRUCTURES	NO.OF DAYS/PER WEEK CLASS ALLOTTED: 3	SEMESTER FROM DATE: 14/07/2025 TO DATE: 15/11/2025
WEEK	CLASS DAY	NO.OF WEEKS: 15 THEORY/PRACTICAL TOPICS
1 st	1 st	Introduction to Data Structures: Terminology & Need
	2 nd	Classification of Data Structures: Linear Data structures
	3 rd	Non-Linear Data structures
2 nd	1 st	Operations on Data Structures
	2 nd	Algorithm Analysis: Time & Space Complexity
	3 rd	Asymptotic Notations (Big O, Ω , Θ)
3 rd	1 st	Asymptotic Notations (Big O, Ω , Θ)
	2 nd	Worst-case Analysis of Algorithms
	3 rd	Linear Data Structures: Stacks-Introduction to Stacks, Array Representation of Stacks
4 th	1 st	Stack Operations (Push, Pop, Peek)
	2 nd	Applications of Stacks: Infix to Postfix Transformation
	3 rd	Evaluating Postfix Expressions.
5 th	1 st	Practice Problems on Stacks
	2 nd	Introduction to Queues, Array Representation of Queues
	3 rd	Queue Operations (Enqueue, Dequeue)
6 th	1 st	Types of Queues: DeQueue (Double-Ended Queue)
	2 nd	Circular Queue
	3 rd	Applications of Queues: Round Robin Scheduling
7 th	1 st	Introduction to Linked Lists, Singly Linked List
	2 nd	Single linked list Representation in memory
	3 rd	Operations on Single linked list-insertion at the beginning and at the end of the list
8 th	1 st	Operations on Single linked list-insertion w.r.t a particular node
	2 nd	Operations on Single linked list-deletion at the beginning and at the end of the list
	3 rd	Operations on Single linked list-deletion w.r.t a particular node
9 th	1 st	Circular Linked Lists
	2 nd	Operations on Circular Linked Lists

9th	3rd	Doubly Linked Lists
10th	1st	Operations on Doubly Linked Lists
	2nd	Linked list representation and operations of stack
	3rd	Linked list representation and operations of stack
11th	1st	Linked list representation and operations of Queue
	2nd	Linked list representation and operations of Queue
	3rd	Trees: Basic Terminology & Structure
12th	1st	Binary Trees: Definition & concept
	2nd	Representation of Binary Trees (Array, Linked)
	3rd	Tree Operations: Insertion & Deletion
13th	1st	Tree Traversals: Inorder, Preorder
	2nd	Tree Traversals: Postorder
	3rd	Types of Binary Trees: BST, Complete, Full, Balanced etc.
14th	1st	Binary Search Tree: Insertion, Deletion
	2nd	BST Traversal & Search
	3rd	Introduction to Graphs: Terminology
15th	1st	Graph Representations: Set, Linked
	2nd	Graph Representations: Adjacency Matrix
	3rd	Graph Traversals: BFS
		Graph Traversals: DFS


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Lesson Plan – Algorithms (CSEPC 209/TH5)

3rd Semester Computer Science (Winter 2025)

Name of the Faculty-Yogeswari Magar

Date-14th July 2025

Class No.	Topic
Unit I – Introduction to Algorithms (8 Classes)	
1	What is an Algorithm? Characteristics and Importance
2	Algorithm vs Program, Algorithm Writing Basics
3	Input/Output, Finiteness, Definiteness, Effectiveness
4	Writing Pseudocode: Format and Conventions
5	Examples: Simple Algorithms (Sum, Max-Min)
6	More Examples: Swapping, Factorial (Non-Recursive)
7	Dry Run and Step-by-Step Execution of Algorithms
8	Practice Exercises and Class Quiz
Unit II – Algorithmic Complexity (8 Classes)	
9	Concept of Time and Space Complexity
10	Best, Worst, and Average Case Analysis
11	Big-O, Big-Ω, Big-Θ Notations
12	Rules to Compute Time Complexity
13	Examples of Complexity Calculation
14	Analyzing Simple Search and Loop-based Algorithms
15	Exercises and Complexity Comparisons
16	Quiz + Discussion on Complexity Problems
Unit III – Recursive Algorithms (6 Classes)	
17	Concept of Recursion vs Iteration
18	Recursive Examples: Fibonacci, Factorial
19	Tower of Hanoi and Analysis
20	Complexity of Recursive Algorithms
21	Converting Recursion to Iteration
22	Practice Problems and Recap

Class No.	Topic
Unit IV – Algorithm Paradigms (8 Classes)	
23	Greedy Approach – Concept and Introduction
24	Examples: Coin Change, Activity Selection
25	Divide and Conquer – Concept & Merge Sort Example
26	Quicksort as Divide and Conquer
27	Dynamic Programming – Concept & Fibonacci/Knapsack
28	Backtracking – N-Queens/Subset Sum
29	Branch and Bound – Conceptual Overview
30	Revision and Comparison of Paradigms
Unit V – Sorting & Searching (8 Classes)	
31	Sorting Overview: Importance and Classification
32	Bubble Sort, Selection Sort
33	Insertion Sort, Comparison with Others
34	Merge Sort and Quicksort (Recap)
35	Heap Sort, Radix Sort Overview
36	Searching Techniques: Linear and Binary Search
37	Binary Search Tree and Balanced BST
38	Hashing and Hash Tables
Unit VI – Graph Algorithms (7 Classes)	
39	Introduction to Graphs: Directed/Undirected, Cycles
40	Graph Representations and Traversals
41	Topological Sorting
42	Minimum Spanning Tree: Kruskal's and Prim's Algorithm
43	Shortest Path: Dijkstra's Algorithm
44	Flow-Based Algorithms: Concept Overview
45	Final Review + Class Quiz


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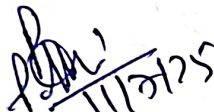

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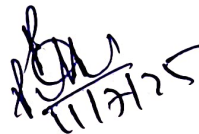
Lesson plan of Winter-2025 (5TH SEMESTER CSE)

DISCIPLINE:CSE	SEMESTER:5TH	NAME OF THE TEACHING FACULTY: MR. PRABEEN KUMAR PATTNAIK
SUBJECT: Entrepreneurship and Management Technology	NO.OF DAYS/PER WEEK CLASS ALLOTTED : 4	SEMESTERFROMDATE: 14/07/2025 TO 15/11/2025 NO.OF WEEKS:15
WEEK	CLASS DAY	THEORY/PRACTICAL TOPICS
1 ST	1 ST	Entrepreneurship Concept /Meaning of Entrepreneurship
	2 ND	Need of Entrepreneurship
	3 RD	Characteristics, Qualities and Types of entrepreneur, Functions
	4 TH	Barriers in entrepreneurship
2 ND	1 ST	Entrepreneurs vrs. Manager
	2 ND	Forms of Business Ownership: Sole proprietorship, partnership forms and others
	3 RD	Types of Industries, Concept of Start-ups
	4 TH	Entrepreneurial support agencies at National, State, District Level(Sources): DIC, NSIC,OSIC, SIDBI, NABARD, Commercial Banks, KVIC etc.
3 RD	1 ST	Entrepreneurial support agencies at National, State, District Level(Sources): DIC, NSIC,OSIC, SIDBI, NABARD, Commercial Banks, KVIC etc.
	2 ND	Technology Business Incubators (TBI) and Science and Technology Entrepreneur Parks
	3 RD	Market Survey and Opportunity Identification (Business Planning) Business Planning
	4 TH	SSI, Ancillary Units
4 TH	1 ST	Tiny Units, Service sector Units
	2 ND	Time schedule Plan
	3 RD	Agencies to be contacted for Project Implementation
	4 TH	Assessment of Demand and supply and Potential areas of Growth
5 TH	1 ST	Identifying Business Opportunity
	2 ND	Final Product selection
	3 RD	Project report Preparation Preliminary project report
	4 TH	Detailed project report
6 TH	1 ST	Techno economic Feasibility
	2 ND	Project Viability
	3 RD	Management Principles
		Definitions of management
	4 TH	Principles of management
7 TH	1 ST	Functions of management (planning, organising, staffing, directing and controlling etc.)
	2 ND	Functions of management (planning, organising, staffing, directing and controlling etc.)

	3 RD	Level of Management in an Organization
	4 TH	Functional Areas of Management
8 TH	1 ST	a) Production management Functions, Activities
		Productivity Quality control
	2 ND	Production Planning and control
		b) Inventory Management
	3 RD	Need for Inventory management
	4 TH	Models/Techniques of Inventory management
9 TH	1 ST	c) Financial Management
		Functions of Financial management
		Management of Working capital Costing (only concept)
	2 ND	Break even Analysis
		Brief idea about Accounting Terminologies: Book Keeping, Journal entry, Petty Cash book, P&L Accounts, Balance Sheets(only Concepts)
	3 RD	d) Marketing Management
		Concept of Marketing and Marketing Management
	4 TH	Marketing Techniques (only concepts)
		Concept of 4P s (Price, Place, Product, Promotion)
10 TH	1 ST	e) Human Resource Management Functions of Personnel Management
		Manpower Planning, Recruitment,
	2 ND	Sources of manpower, Selection process,
		Method of Testing, Methods of Training & Development, Payment of Wages
	3 RD	Leadership and Motivation
		a) Leadership
	4 TH	Definition and Need/Importance
		Qualities and functions of a leader
		Manager Vs Leader
11 TH	1 ST	Style of Leadership (Autocratic, Democratic, Participative)
	2 ND	b) Motivation
		Definition and characteristics Importance of motivation
	3 RD	Factors affecting motivation Theories of motivation (Maslow)
		Methods of Improving Motivation
	4 TH	Importance of Communication in Business
		Types and Barriers of Communication
12 TH	1 ST	Work Culture, TQM & Safety
	2 ND	Human relationship and Performance in Organization
		Relations with Peers, Superiors and Subordinates
	3 RD	TQM concepts: Quality Policy, Quality Management, Quality system
	4 TH	Accidents and Safety, Cause, preventive measures
13 TH	1 ST	General Safety Rules , Personal Protection Equipment(PPE)
	2 ND	Legislation
	3 RD	a) Intellectual Property Rights(IPR),
		Patents, Trademarks, Copyrights
	4 TH	b) Features of Factories Act 1948 with Amendment (only salient points)
		b) Features of Factories Act 1948 with Amendment (only salient points)

14 TH	1 ST	c) Features of Payment of Wages Act 1936 (only salient points)
	2 ND	c) Features of Payment of Wages Act 1936 (only salient points)
	3 RD	. Smart Technology Concept of IOT, How IOT works
	4 TH	Components of IOT, Characteristics of IOT
15 TH	1 ST	Categories of IOT
	2 ND	Applications of IOT- Smart Cities, Smart Transportation,
	3 RD	Smart Home, Smart Healthcare, Smart Industry,
	4 TH	Smart Agriculture, Smart Energy Management etc.


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DISCIPLINE:CSE	SEMESTER:5TH	NAME OF THE TEACHING FACULTY: MRS. MOUSUMI SUBUDHI
SUBJECT: Internet and Web Technology	NO.OF DAYS/PER WEEKCLASS ALLOTTED:4	SEMESTERFROMDATE: : 14/07/2025 TO 15/11/2025 NO.OF WEEKS:15
WEEK	CLASS DAY	THEORY/PRACTICAL TOPICS
1 ST	1 ST	Internet Basics Computer network
	2 ND	Concept of Internet, Intranet
	3 RD	Modem
	4 TH	IP Address, Internet Domains
2 ND	1 ST	CIDR Notation, ISP
	2 ND	TCP/IP
	3 RD	Internet Connectivity & WWW Introduction to connectivity
	4 TH	Medium and methods of connectivity, ISDN, VSAT, RF Link
3 RD	1 ST	Working of Internet
	2 ND	Introduction to WWW
	3 RD	Application Level Protocol
	4 TH	Web Browser, URL, Hyper text
4 TH	1 ST	Hyperlinks, Hypermedia
	2 ND	Search Engine, Proxy sever
	3 RD	CGI, URI, Dreamweaver
	4 TH	Internet Security Introduction to security
5 TH	1 ST	Types of security
	2 ND	Authentication & Authorization
	3 RD	Firewalls
	4 TH	Encryption & Decryption
6 TH	1 ST	SSL
	2 ND	Internet Application E-Mail, Email protocols
	3 RD	Telnet, FTP
	4 TH	Newsgroup
7 TH	1 ST	Chartroom Internet Relay Chat
	2 ND	Video Conferencing
	3 RD	E-Commerce
	4 TH	Website Classifications Static Websites
8 TH	1 ST	Dynamic websites Web portals
	2 ND	Social Networking Sites RSS Feed, Blog, Netiquette
	3 RD	Development of Portals Using HTML Design a webpage, Good Web Design
	4 TH	HTML Introduction
9 TH	1 ST	HTML Tags, Anchor Tag

	2 ND	Table Tag
	3 RD	HTML Frames
	4 TH	Forms
10 TH	1 ST	Disadvantages of HTML
	2 ND	Separating style from structure with style sheets
	3 RD	CSS Rules, Types of CSS
	4 TH	Client side Scripting with JavaScript
		Introduction to script, Client side Scripting, Types of Scripting
11 TH	1 ST	Variables in JavaScript, Built-in Function Arrays in JavaScript, Conditional statements, Loops
	2 ND	Document Object Model Creating Functions, objects in JavaScript
		Working with Cookies
	4 TH	Connecting database using JavaScript in HTML Page
12 TH	1 ST	Working with Browser, validating and submitting Forms
	2 ND	Server Side Scripting Introduction to server side Scripting
	3 RD	Components of SSS Difference between CSS and SSS
	4 TH	Server side Scripting method
13 TH	1 ST	JavaScript on server
	2 ND	SQL
	3 RD	Server Side Programming using PHP Introduction to PHP
	4 TH	Variables, string
14 TH	1 ST	operator types
	2 ND	operator types
	3 RD	Conditional statement
	4 TH	Loops
15 TH	1 ST	Array
	2 ND	GET and POST Method
	3 RD	GET and POST Method
	4 TH	Sessions


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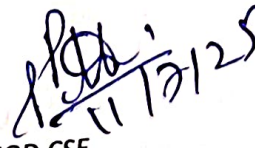
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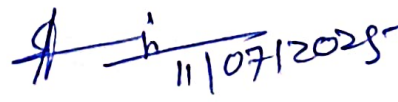
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DISCIPLINE: CSE	SEMESTER: 5TH	NAME OF THE TEACHING FACULTY: MRS. YOGESWARI MAGAR
SUBJECT: Software Engineering	NO. OF DAYS/PER WEEK CLASS ALLOTTED: 4	SEMESTER FROM DATE: 14/07/2025 TO DATE: 15/11/2025 NO. OF WEEKS: 15
WEEK	CLASS DAY	THEORY/PRACTICAL TOPICS
1 st	1 st	1.1 Program vs. Software product 1.2 Emergence of Software Engineering.
	2 nd	Computer Systems Engineering Software Life Cycle Models
	3 rd	1.4.1 Classical Water fall model
	4 th	1.4.2 Iterative Water fall model
2 nd	1 st	1.4.3 Prototyping model
	2 nd	Evolutionary model Spiral model
	3 rd	Responsibility of Project Manager Project Planning
	4 th	2.3 Metrics for Project size estimation (LOC and FP)
3 rd	1 st	2.4 Project Estimation Techniques
	2 nd	2.5 COCOMO Models, Basic, Intermediate and complete
	3 rd	2.5 COCOMO Models, Basic, Intermediate and complete
	4 th	2.6 Scheduling
4 th	1 st	2.7 Organization and Team structure
	2 nd	2.8 Staffing
	3 rd	2.9 Risk Management
	4 th	2.10 Configuration Management
5 th	1 st	Requirements gathering and analysis Software Requirements Specification
	2 nd	Software Requirements Specification Contents of SRS
	3 rd	3.2.2 Characteristics of Good SRS
	4 th	3.2.3 Organization of SRS
6 th	1 st	3.2.4 Techniques for representing complexing logic
	2 nd	3.2.4 Techniques for representing complexing logic
	3 rd	What is a Good S/W design Cohesion and coupling
	4 th	Neat arrangement S/W Design approaches
7 th	1 st	Structured analysis Data Flow Diagrams
	2 nd	Symbols used in DFD Designing DFD
	3 rd	4.9 Developing DFD model of a system
	4 th	4.10 Shortcomings of DFD
8 th	1 st	4.11 Structured design
	2 nd	4.12 Principles of transformation of DFD to Structure Chart

	3 rd	4.13 Transform analysis and Transaction Analysis
	4 th	4.14 Design Review
9 th	1 st	5.1 Characteristics of Good Interface
	2 nd	5.2 Basic concepts of UID
	3 rd	5.2 Basic concepts of UID
	4 th	5.3 Types of User interfaces
10 th	1 st	5.3 Types of User interfaces
	2 nd	5.4 Components based GUI development
	3 rd	5.4 Components based GUI development
	4 th	5.4 Components based GUI development
11 th	1 st	6.1 Coding
	2 nd	6.2 Code Review
	3 rd	6.2.1 Code walk through
	4 th	6.2.2 Code inspections and software Documentation
12 th	1 st	Testing
	2 nd	Unit testing
	3 rd	6.5 Black Box Testing
	4 th	6.6 Equivalence class partitioning and boundary value analysis
13 th	1 st	6.7 White Box Testing
	2 nd	6.8 Different White Box methodologies statement coverage branch coverage, condition coverage, path coverage, cyclomatic complexity data flow based testing and mutation testing
	3 rd	6.8 Different White Box methodologies statement coverage branch coverage, condition coverage, path coverage, cyclomatic complexity data flow based testing and mutation testing
	4 th	Debugging approaches
	1 st	Debugging guidelines
	2 nd	6.11 Integration Testing
	3 rd	6.11 Integration Testing
14 th	4 th	7.1 Software Reliability
	1 st	7.2 Different reliability metrics
	2 nd	7.2 Different reliability metrics
	3 rd	7.3 Reliability growth modeling
	4 th	7.3 Reliability growth modeling
15 th	1 st	7.4 Software quality
	2 nd	7.4 Software quality
	3 rd	7.5 Software Quality Management System
	4 th	


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Lesson Plan:-C++ Programming (CSEPC 201/TH1)

3rd Semester CSE- Winter 2025

Name of the Faculty-Yogeswari Magar

Date-14th July2025

Unit I – Introduction to C++ and Basic Programming (12 Classes)

1	Introduction to Object-Oriented Programming: Features and Principles
2	User-defined Types: Structures and Unions
3	Concepts: Polymorphism and Encapsulation
4	Getting Started with C++: Syntax and Basic Program
5	Data Types, Variables, and Operators in C++
6	Control Structures: if, else, switch, loops
7	Functions: Syntax, Parameters, and Return Types
8	Functions with Default Arguments, Recursion
9	Namespaces and Scope Resolution
10	Strings and Character Arrays
11	One-dimensional and Two-dimensional Arrays
12	Pointers and Pointer Arithmetic

Unit II – Abstraction & Inheritance (11 Classes)

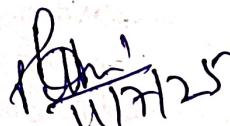
13	Classes and Objects: Definitions, Access Specifiers
14	Constructors: Default, Parameterized
15	Destructors and Object Initialization
16	Member Functions, Inline Functions
17	Friend Functions and Static Members
18	References and Their Use
19	Inheritance: Basics and Types
20	Single and Multilevel Inheritance
21	Multiple and Hybrid Inheritance
22	Virtual Base Class and Constructor/Destructor Call Order
23	Derived Class Constructors and Base Initialization

Unit III – Polymorphism (9 Classes)

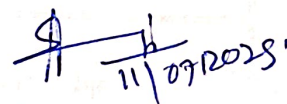
24	Introduction to Polymorphism: Static vs Dynamic Binding
25	Function Overloading and Ambiguities
26	Base Class Pointer and Object Slicing
27	Late Binding and Method Overriding
28	Virtual Functions and Runtime Polymorphism
29	Pure Virtual Functions and Abstract Classes
30	Abstract Classes: Design and Usage
31	Polymorphism Examples and Applications
32	Recap and Quick Quiz on Polymorphism
Unit IV – Operator Overloading (9 Classes)	
33	Operator Functions: Syntax and Usage
34	This Pointer and Its Applications
35	Overloading Unary and Binary Operators
36	Member vs Non-member Operator Overloads
37	Overloading Assignment and Comparison Operators
38	Overloading I/O Operators (<<, >>)
39	Examples and Programs on Operator Overloading
40	Common Mistakes in Operator Overloading
41	Practice Exercises and Review
Unit V – Exception Handling (4 Classes)	
42	Basics: try, throw, catch
43	Exceptions with Classes and Inheritance
44	Function Exception Specification, unexpected()
45	Final Review + Unit V Exercises / MCQ Test



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