

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

3<sup>rd</sup> Semester CSE- Winter 2025

Name of the Faculty-Mousumi Subudhi

Date-14<sup>th</sup> 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 |

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|---|---|---------|-----|
| 22  | Methods and Manipulation,   |         |     |
| 23  | Introduction to Python's Collections Module                       |         |     |
| 24  | Examples  |         |     |
| <b>Unit IV–File Handling and Modules (7 Classes)</b>                    |   |         |     |
| 25  | Concept of File, module   |         |     |
| 26  | File Operations, Reading, Writing                                 |         |     |
| 27  | Appending Files<br>Working with CSV Files                         |         |     |
| 28  | Working with JSON Files   |         |     |
| 29  | Python Modules<br>Built-In Modules (e.g., math, os, datetime)     |         |     |
| 30  | Creating and Using Custom Modules                                 |         |     |
| 31  | Examples and Programs   |         |     |
| <b>Unit V– Object-Oriented Programming (OOP) in Python: (7 Classes)</b> |   |         |     |
| 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                                      |         |     |
| <b>Unit VI–Advanced Python and Applications (7 Classes)</b>             |   |         |     |
| 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. Subbarao*  
11/11/2025

Signature of the Faculty  
with date

*Ram*  
11/11/2025

HOD  
CSE Dept.

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

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

  
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 Berhampur

## Lesson Plan – Algorithms (CSEPC 209/TH5)

3<sup>rd</sup> Semester Computer Science (Winter 2025)

Name of the Faculty-Yogeswari Magar

Date-14<sup>th</sup> July 2025

| Class No.  | Topic   |
|--|---|
| <b>Unit I – Introduction to Algorithms (8 Classes)</b> |   |
| 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                     |
| <b>Unit II – Algorithmic Complexity (8 Classes)</b>    |   |
| 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              |
| <b>Unit III – Recursive Algorithms (6 Classes)</b>     |   |
| 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   |
|---|---|
| <b>Unit IV – Algorithm Paradigms (8 Classes)</b>    |   |
| 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                  |
| <b>Unit V – Sorting &amp; Searching (8 Classes)</b> |   |
| 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                               |
| <b>Unit VI – Graph Algorithms (7 Classes)</b>       |   |
| 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                             |

Signature of the Faculty



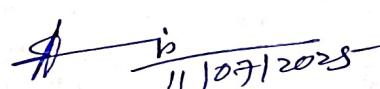
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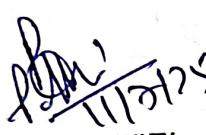
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**Lesson plan of Winter-2025**  
**(5<sup>TH</sup> SEMESTER CSE)**

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

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

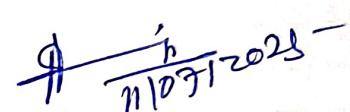
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| 14 <sup>TH</sup> | 1 <sup>ST</sup> | c) Features of Payment of Wages Act 1936 (only salient points) |
|                  | 2 <sup>ND</sup> | c) Features of Payment of Wages Act 1936 (only salient points) |
|                  | 3 <sup>RD</sup> | .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

  
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SIGNATURE OF FACULTY

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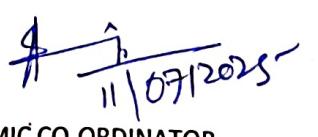
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|--------------------------------------|--------------------------------------|--|
| DISCIPLINE:CSE                       | SEMESTER:5TH                         | NAME OF THE TEACHING FACULTY: MRS. MOUSUMI SUBUDHI                     |
| SUBJECT: Internet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

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

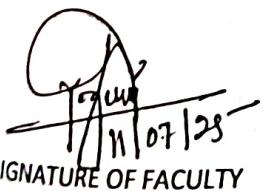
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CSE Dept.

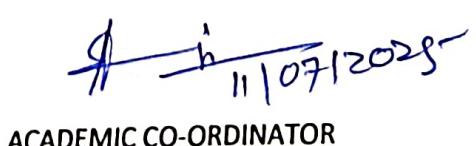
  
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|                               |   |  |
|-------------------------------|---|--|
| DISCIPLINE:CSE                | SEMESTER:5TH                            | NAME OF THE TEACHING FACULTY: MRS. YOGESWARI MAGAR                         |
| SUBJECT: Software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

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

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

3<sup>rd</sup> Semester CSE- Winter 2025

Name of the Faculty-Yogeswari Magar

Date-14<sup>th</sup> July 2025

## 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)

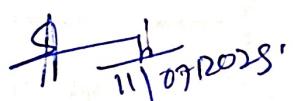
|    |  |
|----|--|
| 42 | Basics: try, throw, catch                      |
| 43 | Exceptions with Classes and Inheritance        |
| 44 | Function Exception Specification, unexpected() |
| 45 | Final Review + Unit V Exercises / MCQ Test     |



Signature of the Faculty



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