

## LESSON PLAN

| Department: CSE                |                                           | Semester: 3 <sup>rd</sup>                                                     | Name of Faculty: Miss. RASMITA PATRA |
|--------------------------------|-------------------------------------------|-------------------------------------------------------------------------------|--------------------------------------|
| Subject: Data Structure (TH-3) | No. of days/<br>week Class<br>allotted: 3 | Effective From Date: 01.07.2026                                               |                                      |
|                                |                                           | Topic to be Covered:                                                          |                                      |
|                                |                                           | Theory                                                                        |                                      |
| Week                           | Class Day                                 | UNIT 1: Introduction to Data Structures:                                      |                                      |
| 1 <sup>st</sup>                | 1 <sup>st</sup>                           | Basic Terminology, Classification of Data Structure                           |                                      |
|                                | 2 <sup>nd</sup>                           | Classification of Data Structure                                              |                                      |
|                                | 3 <sup>rd</sup>                           | Operations on Data Structure                                                  |                                      |
| 2 <sup>nd</sup>                | 1 <sup>st</sup>                           | Operations on Data Structure                                                  |                                      |
|                                | 2 <sup>nd</sup>                           | Operations on Data Structure                                                  |                                      |
|                                | 3 <sup>rd</sup>                           | Asymptotic and worst-case analysis of algorithms                              |                                      |
| 3 <sup>rd</sup>                | 1 <sup>st</sup>                           | Asymptotic and worst-case analysis of algorithms                              |                                      |
|                                | 2 <sup>nd</sup>                           | <b>1. Doubt Clearing class</b><br><b>2. Quiz test</b><br><b>3. Assignment</b> |                                      |
|                                | 3 <sup>rd</sup>                           | <b>UNIT 2: Linear Data Structures:</b><br>Stacks-Introduction to Stacks       |                                      |
| 4 <sup>th</sup>                | 1 <sup>st</sup>                           | Array Representation of Stacks                                                |                                      |
|                                | 2 <sup>nd</sup>                           | Operations on a Stack                                                         |                                      |
|                                | 3 <sup>rd</sup>                           | Applications of Stacks- Infix-to-Postfix Transformation                       |                                      |
| 5 <sup>th</sup>                | 1 <sup>st</sup>                           | evaluating Postfix Expressions                                                |                                      |
|                                | 2 <sup>nd</sup>                           | Queues: Introduction to Queues, Array Representation of Queues                |                                      |
|                                | 3 <sup>rd</sup>                           | Operations on a Queue                                                         |                                      |
| 6 <sup>th</sup>                | 1 <sup>st</sup>                           | Types of Queues-DeQueue, Circular Queue                                       |                                      |
|                                | 2 <sup>nd</sup>                           | Applications of Queues-Round Robin Algorithm                                  |                                      |
|                                | 3 <sup>rd</sup>                           | <b>1. Doubt Clearing class</b><br><b>2. Quiz test</b><br><b>3. Assignment</b> |                                      |
| 7 <sup>th</sup>                | 1 <sup>st</sup>                           | <b>UNIT 3: Linked Lists:</b><br>Singly Linked List,                           |                                      |
|                                | 2 <sup>nd</sup>                           | Singly Linked List                                                            |                                      |
|                                | 3 <sup>rd</sup>                           | Representation in Memory                                                      |                                      |
| 8 <sup>th</sup>                | 1 <sup>st</sup>                           | Operations on a Single Linked List                                            |                                      |
|                                | 2 <sup>nd</sup>                           | Operations on a Single Linked List                                            |                                      |
|                                | 3 <sup>rd</sup>                           | Operations on a Single Linked List                                            |                                      |
| 9 <sup>th</sup>                | 1 <sup>st</sup>                           | Circular Linked Lists,                                                        |                                      |
|                                | 2 <sup>nd</sup>                           | Doubly Linked Lists                                                           |                                      |
|                                | 3 <sup>rd</sup>                           | Doubly Linked Lists                                                           |                                      |
| 10 <sup>th</sup>               | 1 <sup>st</sup>                           | Linked List Representation                                                    |                                      |
|                                | 2 <sup>nd</sup>                           | Linked List Representation and Operations of Stack                            |                                      |
|                                | 3 <sup>rd</sup>                           | Linked List Representation and Operations of Queue                            |                                      |
| 11 <sup>th</sup>               | 1 <sup>st</sup>                           | Linked List Representation and Operations of Queue                            |                                      |
|                                | 2 <sup>nd</sup>                           | <b>1. Doubt Clearing class</b><br><b>2. Quiz test</b><br><b>3. Assignment</b> |                                      |

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|------------------|-----------------|-------------------------------------------------------------------------|
|                  | 3 <sup>rd</sup> | <b>UNIT 4: Non-Linear Data Structures:</b><br>Trees-Basic Terminologies |
| 12 <sup>th</sup> | 1 <sup>st</sup> | Definition and Concepts of Binary Trees                                 |
|                  | 2 <sup>nd</sup> | Definition and Concepts of Binary Trees                                 |
|                  | 3 <sup>rd</sup> | Representations of a Binary Tree using Arrays                           |
| 13 <sup>th</sup> | 1 <sup>st</sup> | Representations of a Binary Tree using Linked Lists                     |
|                  | 2 <sup>nd</sup> | Operations on a Binary                                                  |
|                  | 3 <sup>rd</sup> | Tree-Insertion, Deletion                                                |
| 14 <sup>th</sup> | 1 <sup>st</sup> | Tree-Traversals                                                         |
|                  | 2 <sup>nd</sup> | Types of Binary Trees                                                   |
|                  | 3 <sup>rd</sup> | GRAPHS: Graph Terminologies                                             |
| 15 <sup>th</sup> | 1 <sup>st</sup> | Representation of Graphs- Set, Linked, Matrix                           |
|                  | 2 <sup>nd</sup> | Graph Traversals                                                        |
|                  | 3 <sup>rd</sup> | 1. Doubt Clearing class<br>2. Quiz test<br>3. Assignment                |

*Rasmita Patra*  
Signature of Faculty

*Rasmita Patra*  
Miss. Rasmita Patra  
HOD, CSE (I/C)  
Govt. Polytechnic, Kandhamal