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Description generated with very high confidence

**Course Plan**

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| **Department :** | Computer Science and Engineering |
| **Course Name & code :** | Advanced Data Structures and Algorithms LAB & CSE 5141 |
| **Semester & branch :** | I Semester M.Tech-CSE & CSIS |
| **Name of the faculty :** | GURURAJ |
| **No of contact hours/week:** | |  |  |  |  | | --- | --- | --- | --- | | **L** | **T** | **P** | **C** | | 0 | 0 | 3 | 1 | |

**Course Outcomes (COs)**

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| --- | --- | --- | --- |
|  | ***At the end of this course, the student should be able to:*** | **No. of Contact Hours** | **Marks** |
| CO1: | Analyze the efficiency of any given algorithm | 6 | 20 |
| CO2: | Determine Amortized cost of given algorithm | 12 | 30 |
| CO3: | Implement advanced data structures B-tree and Binomial trees heaps | 9 | 25 |
| CO4: | Discover shortest path from single source to all other vertices and also all pairs shortest | 9 | 25 |
| CO5: | Click or tap here to enter text. | Hrs. | Marks |
|  | **Total** | 36 | 100 |

**Assessment Plan**

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| 1. **Continuous Evaluation** | Enter the weightage in percentage (60%). |
| Conduction of 2 evaluations for 20 marks each : 40 M  Mini Project : 20 M  \_\_\_\_\_\_  60 M | |
| 1. **Lab Examination** | Enter the weightage in percentage (40%). |
| * Examination of 2 hours duration (Max. Marks: 40) Write-up : 15M Execution: 25M | |

**Lesson Plan**

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| **L. No.** | **Topics** | **Course Outcome Addressed** |
| **L1** | Fundamentals of the Analysis of Algorithms Efficiency | CO1 |
| **L2** | Amortized Analysis: Aggregate analysis | CO1, CO2 |
| **L3** | B-Trees : Creation | CO1, CO2 |
| **L4** | B-trees: Searching | CO1, CO2 |
| **L5** | B-trees: Deletion | CO1, CO2, CO3 |
| **L6** | Binomial Heaps - Creation | CO1, CO2, CO3 |
| **L7** | Binomial Heaps - Minimum finding | CO2, CO3, CO4 |
| **L8** | Bellman-Ford algorithm, The Floyd-Warshall algorithm | CO2, CO3, CO4 |
| **L9** | Mini Project | CO1, CO2, CO3, CO4 |
| **L10** | Mini Project | CO1, CO2, CO3, CO4 |
| **L11** | Mini Project | CO1, CO2, CO3, CO4 |
| **L12** | Mini Project | CO1, CO2, CO3, CO4 |
| **L13** | Click or tap here to enter text. | CO |
| **L14** | Click or tap here to enter text. | CO |

**References:**

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| 1. | Cormen Thomas H., Leiserson Charles E, Rivest Ronald L. and Stein Clifford,“Introduction to Algorithms”, (3e), MIT Press, 2009 |
| 2. | Cormen Thomas H., Leiserson Charles E, Rivest Ronald L. and Stein Clifford, “Introduction to Algorithms” (2e), Prentice-Hall India, 2001. |
| 3. | Baase Sara and Gelder A.V., “Computer Algorithms -Introduction to Design and Analysis”, (3e), Pearson Education, 2000 |
| 4. | Anany Levitin, “Introduction to the Design and Analysis of Algorithms “, (3e), Pearson Education, 2011 |
| 5. | Click or tap here to enter text. |
| 6. | Click or tap here to enter text. |
| 7. | Click or tap here to enter text. |

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| **Submitted by:** | GURURAJ |

**(Signature of the faculty)**

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| **Date:** | 07-08-2023 |

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| **Approved by:** | Dr. Krishnamoorthi M. |

**(Signature of HOD)**

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| **Date:** | 08-09-2021 |

**Faculty members teaching the course (IF MULTIPLE sections EXIST):**

|  |  |  |  |
| --- | --- | --- | --- |
| **FACULTY** | **Section** | **FACULTY** | **Section** |
| Mr. Gururaj | CSE |  |  |
| Mr. Prakash K Aithal | CSIS |  |  |
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