MY CLASS RECORDING PLAYLIST:

https://youtube.com/playlist?list=PLgU-6-TtNPAzpauVSPWp
KFbmu5Rbc2dEQ&si=PAzhNHH1uGKTAaTf

[dijkstra class is missing, giving some supplementary links for that]
For dijkstra algo:
▶ Dijkstra's Shortest Path Algorithm | Graph Theory
[you can ignore the optimization parts and just focus on the
simulation for now]

*****GRAPH TRAVERSAL******

Topic:GRAPH: 📄 6. Graph [HFN] Supplementary videos
Basic
　　1. Graph basic: you need to know that in order to do the tasks

Traversal algos [you can refer to my recordings Lecture 1 2]
　　2. BFS: You can find in the class recordings + this slide
　　　📕 6.1 Graph[BUX slide 8].pdf
　　3. DFS: Recordings of my class + 📕 6.1 Graph[BUX slide 8].pdf this
　　　slide
Traversal comparison: ▶ A Comparison of Pathfinding Algorithms　[SKIP
A* Algorithm for now]

Implementational algos: [refer to my recordings Lecture 2 3]
[Can refer to the slide : 6.1, 6.2, 6.3, 6.4 from our shared link:
https://drive.google.com/drive/folders/1EuJTeoAiPXXtdCI5O3k48XDK5_z4O7
xU?usp=drive_link]

　　1. BFS: shortest path in an unweighted graph (refer to the slide
　　　above), level order demonstration since it explores level by
　　　level so any problem regarding to those, also same slide. For
　　　identifying shortest path sequence maintain a parent pointer.

　　2. DFS: edge classification:
　　　▶ DFS - Types of Edges | Edge Classification | Tree Edge, Back…
　　　How to find Cycle in graph: (DFS method)
　　　▶ Detect cycle in a directed graph

　　3. Topological sort: (DFS)
　　　▶ Topological Sort Algorithm | Graph Theory (BFS/ Kahn's ALgo)
　　　Implementation of top sort:
　　　▶ Shortest/Longest path on a Directed Acyclic Graph (DAG) | G…

4. Strongly Connected Components:
    1
▶️ Kosaraju Algorithm | Strongly connected components in a graph
    2 ▶️ Tarjans strongly connected components algorithm   [OPTIONAL]

*****PATH FINDING/ SHORTEEST PATH ALGO*****

FOR DIJKSTRA SIMULATION FOLLOW THIS VIDEO:
 ▶️ Graph Data Structure 4. Dijkstra's Shortest Path Algorithm

Single source shortest path algorithms: [USE THESE VIDEOs]
    ▶️ Dijkstra's Shortest Path Algorithm | Graph Theory
       [Ignore the optimization parts]
    ▶️ Graph Data Structure 4. Dijkstra's Shortest Path Algorithm

Negative weight cycle issue:
 ▶️ Why Dijkstra's Algorithm Doesn't Work with Negative Weights

To handle that, we use: [just know the general idea of bellman]
    ▶️ Bellman Ford Algorithm | Shortest path & Negative cycles | G…

*****GREEDY ALGO******
   1. **Huffman coding[Greedy Algo]:** [refer to my recordings lecture 6]
     📄 7. Huffman Coding [all the links are given in this doc]

   2. **Fractional Knapsack [not dynamic]**
     ▶️ Knapsack Problem | Greedy Method | Data structure & Algorith…

******MINIMUM SPANNING TREE******
Minimum Spanning Tree: 📄 6.4 Dijkstra+ MST.pdf [SLIDE]
[refer to my recordings Lecture 5 , 6]
   1. **Prims Algo:**
     ▶️ Prim's Minimum Spanning Tree Algorithm | Graph Theory

   2. **Kruskal Algo:** ▶️ Union Find Kruskal's Algorithm
   3. **Prims vs kruskal:**
     https://www.baeldung.com/cs/kruskals-vs-prims-algorithm

******DYNAMIC PROGRAMMING******

Dynamic Programming: [refer to my recordings Lecture 7,8]

      01 knapsack:

      ▶ 0/1 Knapsack Problem Dynamic Programming

      LCS:

      ▶ 4.9 Longest Common Subsequence (LCS) - Recursion and Dynami…

********PvsNP******** [Just general ideas/intro is needed]

P vs NP problem:[USE THESE VIDEOs+slides]

1. https://bracuacbd-my.sharepoint.com/:f:/g/personal/fakhruddin_gaz zali_bracu_ac_bd/EkuceTu_il1FufQaAcqawGcBfgfdzpODwUFjgGUcBQxnZA?e =0wmLdo

2. 📄 NP.pdf

ALL THE RELEVANT BUX SLIDES ARE GIVEN ALONG WITH THIS DOC IN THIS LINK:

https://drive.google.com/drive/folders/1EuJTeoAiPXXtdCI5O3k4 8XDK5_z4O7xU?usp=drive_link