Proving techniques by contradiction and mathematical induction are not there in TT1 syllabus)

coremen chapters to refer:

1. Module 1

1.1 complexity : chapter 3 and 4

1.2 amortized analysis: chapter 17

2. Module 2 : chapter 5

3. Module 3: Red Black Tree, chapter 13

4. Module 4: flow Network and ford Fulkerson, chapter chapter 26

Videos to refer:

1. amortized analysis using dynamic tables : <https://www.youtube.com/watch?v=iy-WhloN6vA>
2. Probabilistic analysis Hiring Problem: <https://www.youtube.com/watch?v=BD-NJekPgsY>
3. Probabilistic analysis Randomized algorithms: <https://www.youtube.com/watch?v=u1z-1QVdm9I>
4. Indicator Random Variable(IRV): <https://www.youtube.com/watch?v=xVQm3eTbmqs>
5. Hiring Problem using IRV: <https://www.youtube.com/watch?v=yQAw564S-Xg>
6. Birthday Paradox: <https://www.youtube.com/watch?v=1tnas6FQxX8>
7. Balls and Bins: <https://www.youtube.com/watch?v=OOYl7_D2LvU>
8. Red Black Tree Violations: <https://www.youtube.com/watch?v=axa2g5oOzCE>
9. Red Black tree Rotation: <https://www.youtube.com/watch?v=PhY56LpCtP4>
10. Red Black Tree Insertion: <https://www.youtube.com/watch?v=UaLIHuR1t8Q>
11. Red Black tree Deletion: <https://www.youtube.com/watch?v=CTvfzU_uNKE>
12. Red Black tree Deletion: <https://www.geeksforgeeks.org/red-black-tree-set-3-delete-2/>
13. Red Black tree Deletion: <https://www.cs.purdue.edu/homes/ayg/CS251/slides/chap13c.pdf>
14. Ford Fulkerson:

<https://www.youtube.com/watch?v=GiN3jRdgxU4>

<https://youtu.be/Iwc3Uj4aaF4?si=J9_E4JAqG2WbbXik>

https://youtu.be/3LG-My\_MoWc?si=o9BKB3WnLLT5wSPX

1. Master Method examples with solution: <https://www.youtube.com/watch?v=lPUhHmgrpik>
2. Amortized Time complexity / analysis - <https://www.youtube.com/watch?v=MTl8djZFWE0>
3. Randomised BST -

<https://www.geeksforgeeks.org/treap-a-randomized-binary-search-tree/>

1. KD Tree-

<https://www.youtube.com/watch?v=Glp7THUpGow&t=157s>

1. R Tree

<https://www.geeksforgeeks.org/introduction-to-r-tree/>

1. Push Relabel : <https://www.youtube.com/watch?v=G_P_vQpPyt0>
2. Max flow min cut : <https://youtu.be/a0XlX0NwRhM?si=D_1dXLECFW_bVCWE>

Dhruvin ka -   
  
https://youtu.be/1jQc9bfSiwg?si=MFQIYf8DnJowB9KE

ford fulkerson

https://youtu.be/MOkm\_\_T2jUg?si=P619r0OL\_jNtoDiP

loglog hyperloglog

https://youtu.be/RSXM9bgqxJM?si=gm20xCh73a\_HKpJM

ray crossing condition yaad rakho isme

https://youtu.be/oxd9JfoU\_lU?si=zdD5si\_Q44uM0J\_J ,https://youtu.be/tbQfRbfoyJw?si=SMcScDM7menmoy6q

K server

https://youtu.be/X46vqqutpBA?si=6cxv6QcXTVoLBxHg

balanced kd tree

https://youtu.be/XG4zpiJAkD4?si=kY13jFdNo9vO1mpD

unbalanced tree

https://youtu.be/xcqZyG9CEAw?si=W25AQCYOLPnEs12M

push reable

https://youtu.be/0W\_m46Q4qMc?si=yUOOBqKiW\_RKD9Jb

finding closest pair of points