**Topic for Project 100 (2013 Batch)**

**Level 0 (To pass):**

1. Stack.
2. Queue.
3. BFS.
4. DFS.
5. Sorting(Bubble sort/n^2 sort).
6. Structure sort(using stl).
7. Seive.
8. Number of Divisors
9. Factorization.
10. Fibonacci Numbers
11. Substring using stl [You should know all basic stl].
12. Factorial.
13. GCD & LCM.
14. Trailing Zeroes after factorial.
15. Euler phi function. //
16. Sum of divisors.//
17. Bigmod.(Modular Arithmetic) //
18. Factorization of factorials.
19. Trailing zeroes of **nCr.**
20. Finding **nCr.**
21. Topological sort. //
22. Djkstra’s Algorithm. //
23. Floyd Warshal.
24. MST(Kruskal + Prims). //
25. Coin Change Problem.
26. Normal Recursion. //
27. Backtracking. //
28. Basic Geometry.
29. Binary search. //
30. Basic DP.
31. Basic Combinatorics.
32. Bicoloring
33. LIS,LCS.

**Level 1 (to ensure A+):**

1. Bitmask.
2. SCC.
3. Nim, Basic Game theory
4. Sprage Grundy Number.
5. Convex Hull.
6. Line Segment Intersection.
7. LIS nlgn.
8. MCM.
9. Bitmask Seive.
10. Segment tree.
11. Advanced Combinatorics.
12. Inclusion/Exclusion.
13. KMP.
14. Probability, Expected value.
15. Grid Compression.
16. Lattice Points.
17. Advanced DP.

**Total Problem: 300+**

**Online Judge: UVA, LightOJ, USACO, SPOJ, PKU, CodeChef, TJU**

**Tutorial: Topcoder, Codeforces, EULER Project, Competitive Programming 3: The New Lower Bound of Programming Contests by Steven Halim**

**Grading Criteria:**

**Level 0**: At least 10 problems from each category. Level 0 will ensure highest B+ grade.

**Level 1**: Solve at least 2 problems from each category. Level 1 will ensure A+ or 100% marks.