Course Outline : Part 1

1. Primality Test
2. Prime Factorization
3. Sieve of Eratosthenes
4. Binary Exponentiation
5. Euclid algorithm for GCD
6. Goldbach's Conjecture
7. Finding number of divisors of N
8. Calculating Binomial Coefficient
9. Segmented Sieve
10. Introduction to Modulo inverse and how to calc. it

Course Outline : Part 2

1. Extended Euclidean Algorithm
2. Linear diophantine equation
3. Matrix exponentiation
4. Fibonacci numbers in O(logn)
5. Chinese Remainder Theorem
6. Euler Totient Function
7. Sum of divisors
8. Pollard p-1 method
9. Pollard Rho Algorithm