S Y L L A B U S _ Incourse_ TANVIR FAHIM SIR _ 2025

1. **Hashing**: Linear Probe, Quadratic Probe, Double hashing, Random hashing.

2. **Computational Geometry**: Vector Cross Product, segment intersection, point inside a polygon (convex), area of a polygon, convex hull, Line, Segment, circle intersection.

3. **Number Theory**: Sieve of Eratosthenes, Chinese Remainder Theorem

4. **String Matching Algorithms**: Naïve string matching algorithm, Rabin-Karp algorithm, Knuth-Morris-Pratt (KMP) algorithm, Trie Suffix Array.

1. Hashing
    a. Direct Addressing
    b. Hash Functions
    c. Universal Hashing
    d. Open Addressing
    e. Linear Probing
    f. Quadratic Probing
    g. Double Hashing

2. Computational Geometry
    a. Any segment intersection
    b. Graham Scan
    c. Jarvis March
3. String Matching
    a. Naive Method
    b. Rabin Karp
    c. Knuth-Morris-Pratt
    d. Tries
    e. Suffix Trees