B.Tech CSE – 4th Semester Syllabus

1. Design and Analysis of Algorithms (DAA)

Topics:

1- Introduction to Algorithms

2- Asymptotic Notations (Big-O, Theta, Omega)

3- Divide and Conquer algorithms

4- Greedy algorithms

5- Dynamic Programming

6- Backtracking and Branch & Bound

7- Graph Algorithms (Dijkstra, Prim, Kruskal)

8- Sorting algorithms (Merge, Quick, Heap)

2. Operating Systems (OS)

Topics:

1- Introduction to Operating System

2- Process and Thread management

3- CPU Scheduling algorithms

4- Deadlocks (prevention, avoidance)

5- Memory management

6- Virtual memory

7- File system management

8- Disk scheduling

3. Database Management Systems (DBMS)

Topics:

1- Database concepts

2- ER model and relational model

3- SQL queries

4- Normalization (1NF, 2NF, 3NF)

5- Transaction management

6- Concurrency control

7- Database security

4. Software Engineering

Topics:

1- Software Development Life Cycle (SDLC)

2- Requirement analysis

3- Software design models

4- Agile methodology

5- Software testing

6- Software project management

7- Risk management

5. Theory of Computation / Discrete Mathematics (sometimes)

Topics:

1- Finite automata

2- Regular expressions

3- Context-free grammar

4- Pushdown automata

5- Turing machines

6- Computability and decidability

Labs / Practical Subjects

Usually 2–3 labs are included.

1. DBMS Lab:

1- SQL queries

2- Table creation

3- ER diagram design

4- Stored procedures and triggers

2. Operating System Lab:

1- Process scheduling programs

2- Deadlock simulation

3- Memory allocation algorithms

3. Algorithms Lab:

1- Implement sorting algorithms

2- Graph algorithms

3- Complexity analysis