**University of Technology**

**Computer Engineering Department**

**Academic Year 2023 - 2024**

**Forth Year – second Semester – (NE) Branch of Branch**

| code | Subject title<br>Distributed System | 2 Hours/Week | 2 Units |
|---|---|---|---|

| Contents of Syllabus | Hours |
|---|---|
| 1- Introduction to distributed system :<br>• hardware concepts<br>• software concepts<br>• client-server model | 2 |
| 2- Communication:<br>• layered protocols<br>• remote procedure calls<br>• remote object invocation<br>• message-oriented communication<br>• stream-oriented communication | 4 |
| 3- Processes:<br>• Threads<br>• Clients<br>• Server<br>• code migration | 4 |
| 4- Naming:<br>• naming entities<br>• locating mobile entities<br>• removing un-referenced entities | 4 |
| 5- Synchronization:<br>• clock synchronization<br>• logical clocks<br>• global state<br>• election algorithm | 4 |
| 6- Consistency and replication:<br>• data centric<br>• consistency models<br>• clients centric consistency model<br>• distributed protocols<br>• consistency protocols | 4 |
| 7- Distributed shared memory:<br>• algorithm for implementing DSM<br>• memory coherence | 4 |
| 8- Distributed file system | 4 |

Text book(s):-

1-A.Taunenbaum, “Distributed systems:principles and paradigm”
2-G.Coulouris, J.Dollimore and T.Kindberg, “distributed systems: concepts and design: pearson education

References:

1- Ajay D. Kshemkalyani , Mukesh Singhal, “**Distributed Computing,** Principles, Algorithms, and Systems”
2- Sukumar Ghosh, “distributed system, an algorithmic approach”