Distributed Systems

Topic	No. of Session
Introduction	**1**
Synchronous networks	
• Formal model	**1**
• Leader election	**2**
• Minimum spanning tree	**1**
• Fault-tolerant consensus	**3**
• K-set-agreement, Approximate Agreement, Distributed commit	**2**
Asynchronous networks	
• Non-fault-tolerant algorithms for asynchronous networks. Leader election, breadth-first search, shortest paths	**3**
• Minimum spanning tree	**1**
• Mutual exclusion algorithms	**2**
• Paxos	**3**
• Gossip	**1**
RPCs and concurrency control	**1**
Time and ordering	**1**
Cloud computing	
• Mapreduce/Hadoop	**2**
• Distributed file systems	**1**
• Scheduling	**1**
• Distributed learning, Spark	**2**
P2P systems	
• Gnutella protocol, Chord	**2**
• Bitcoin	**1**

References:

[1] Nancy Lynch. *Distributed algorithms*. Morgan Kaufmann, 1996.

[2] Andrew Tanenbaum and Maarten van Steen. *Distributed Systems: Principles and Paradigms (2nd Edition)*, Prentice Hall.