

## CCE 5301 – Broadcast and Peer-to-Peer Networks

Department of Communications and Computer Engineering  
University of Malta

### *Tutorial*

1. Define a broadcast system
2. A transmitter does not know when a user joins the network. How is important data transmission guaranteed?
3. Describe possible solutions for data repetition in broadcasting networks.
4. How does cache help in reducing delays?
5. Discuss how DAB can use single frequency networks.
6. Explain OFDM and its advantages.
7. What are the transport mechanisms in DAB?
8. Describe the DAB transmitter architecture.
9. Discuss how DAB allocates channels.
10. Describe the DAB receiver architecture.
11. How is bit rate managed in DAB?
12. Describe DVB.
13. Discuss the planning required in designing a terrestrial broadcasting network.
14. How does a digital receiver handle multipath signals in T-DAB and DVB-T?
15. How is the network configuration assessed?
16. What is the function of an Overlay?
17. What are the advantages of an Overlay network?
18. Discuss the challenges and limitations of Overlay networks.
19. Explain the function of distributed hash tables.

20. What is a NAT and how does it affect the Overlay network? How is the NAT problem solved?
21. What is the difference between IP Multicast and Overlay Multicast?
22. Describe how unstructured Overlay networks function.
23. Describe how structured Overlay networks operate. Give examples of such architectures.
24. Describe the LH\* algorithm.
25. Describe the Ninja system.
26. Compare a client-server approach to an Overlay network.
27. What are the characteristics of P2P networks?
28. How are P2P networks classified?
29. Give examples of unstructured P2P networks and their features.
30. Give examples of structured P2P networks and their features.
31. Discuss the problem of churn and maintenance in P2P networks.
32. How does mobility affect P2P networks?
33. Describe indexing techniques in P2P networks, for each showing how a query is propagated, the requested content is delivered, and the technique's limitations.
34. Discuss searching schemes in unstructured P2P networks.
35. Why is replication necessary in P2P networks? Give some examples of the techniques used.
36. Describe the Napster network
37. Describe the BitTorrent network.
38. Describe the Gnutella network.