CN8812 Course Outline

Course summary

This course covers both LAN (Local-Area Network) and WAN (Wide-Area Network) switching technologies. It first covers Ethernet LAN switching and related topics such as spanning tree, VLAN, trunking, multicasting. Next, it studies WAN technologies including Frame-Relay, ATM, and MPLS. The rest of the course covers the topics of Layer-2 VPNs (Virtual Private Networks). In particular, it focuses on Metro-Ethernet, Carrier-Ethernet and VPLS (Virtual Private LAN Service).

Course evaluation

Lab reports	15%
Lab test	15%
Quizzes	20%
Final	50%

Topics

Topics	Hours
LAN Switching – Switching mechanism, Spanning Tree protocol (STP), RSTP, LAN Multicasting, LAN Security, HSRP.	9
VLAN – Trunking, MST, VLAN Management, Interconnecting VLANs.	9
WAN Switching – Datagram and virtual circuit switching, Frame Relay, ATM	3
MPLS – Label switching mechanism, Label distribution, Penultimate-hop-popping	3
Layer-2 VPN – Metro-Ethernet, Pseudo Wire, Carrier Ethernet and VPLS	12

Examination Schedule

1. Quiz 1: Nov. 17, 2010 (1 hour)
2. Quiz 2: Dec. 1, 2010 (1 hour)
3. Final Written Examination: December 13, 2009 (3 hours)
4. Lab Examination: December 14, 2009 (1 hour)

Labs

1. Spanning Tree
2. Multicasting and HSRP
3. VLANs
4. MPLS
5. Metro-Ethernet (Q-in-Q)
6. Pseudo Wire

Lab Schedule

Lab	1	2	3	4	5	6
Due Date	Nov. 15	Nov. 22	Dec. 1	Dec. 8	Dec. 13	Dec. 18

Texts and References

1. "Communication Networks", second edition, by Leon-Garcia and Widjaja, McGraw Hill, 2004, ISBN 0-07-246352-x.
2. "Cisco LAN Switching", by K. Clark and K. Hamilton, Cisco Press, ISBN 1-57870-094-9.
3. IEEE standard documents: 802.1d, 802.1q, 802.1ak, 802.1ad, 802.1ah
4. RFC 3031: MPLS.
5. RFC 4261 and RFC 4262: VPLS
6. Cisco documents

Counseling Hours

1. Li, Lisa (email address: x6li@ryerson.ca): Monday 4-5pm and 8-9pm
2. Khan, Shujjat (email address: shujjat.khan@ryerson.ca): Wednesday 4-5pm and 8-9pm