LAB SESSION WEEK 1 – TUTORIAL NOTES

GENERAL INFORMATION

Introduction to Unit

1. Three components: Lectures, Lab, NetAcademy

2. Labs and the lectures cover two related, but distinct sets of learning outcomes

3. Lectures revolve around theoretical concepts (some also covered in the labs)

   - Pre-recorded → Keep up with the weekly schedule

   - The Q&A sessions are used to do revision → Attendance is highly recommended.

4. Labs revolve around obtaining the hands-on skills to pass the practical component

   - Designed for **continual learning** of the skills required to build simple networks

   - Progressively prepare students for the **Final Skills Assessment**

   - The **troubleshooting** Labs are some of the most important labs

5. NetAcademy is an online resource where students will have access to the CCNA curriculum

   - Access to content and online exams to gauge their understanding.

   - Prepare students for external certification.

   - Pass the NetAcademy program →eligible for certification discount voucher

Lab House Keeping

1. If on-campus:

   - Adhere to COVIDSafe guidelines → Swinburne's COVID-19 Hub

   - Sanitise your mouse, keyboard and desk surface before and after → materials provided

   - Students will not physically handle the lab equipment

2. Clean up devices **before and after** your lab practice → remove startup config and vlan.dat

3. Switch Clean Up Demo in Echo360
4. **Do not configure passwords on the devices unless explicitly requested as a lab task**

About Lab Attendance

1. Most labs should run on-campus for onshore students, however:
   - Week 1 and 2 labs will run online
   - We are hoping to run on-campus labs as of Week 3 (to be confirmed)
   - In the event of a lockdown all labs will move online again
2. All labs run online for offshore students. Only 2 options:
   - Practical 1-1-ONLINE-FRI-11:30
   - Practical 1-5-ONLINE-FRI-14:30
3. You must attend the labs for some of your in-semester assessments
   - Week 5: Group Lab Activity 1
   - Week 6: Group Lab Activity 2
   - Week 8: Mid-Sem Skills Assessment
   - Week 11: Group Lab Activity 3
   - Week 12: Final VLSM Assessment
4. Attendance to all labs is not mandatory, but recommended
5. Statistically, students who attend labs are likely to pass skills assessments
6. We take roll only for statistical purposes

Lab Journal

1. Make notes during the lab → **configuration and <u>troubleshooting</u>** commands
2. You are allowed to use this journal during your skill exams

3. Only hand written material, except for the House Keeping Hand out

4. It's to be signed by your instructor <u>before</u> it can be used during skills exams

5. My suggestion: step-by-step working methodology for building a network

Assessments Overview

1. NetAcademy Module Group Exams – **1%**

   - 4 CCNA1 and 1 CCNA 1 Module Group

   - You will receive your account information some time during week 1

   - Complete in your own time → due dates specified in the assessment planner

   - 1 mark awarded if you have genuinely attempt at least 6 (i.e. over 40%)

   - Use Module Exams as self-assessment for Final CCNA1 Exam

2. NetAcademy CCNA 1 Final Exam – **4%**

   - Week 12

   - Re-sit on Week 12 – ask your lab instructor

   - Attempting the CCNA1 module is mandatory for this Unit

   - To pass the CCNA program you must

     i. Pass the Swinburne Unit

     ii. Achieve 60% or more in the CCNA1 Final Test

   - The CCNA program runs separately from the Swinburne Unit. The CCNA 1 final is NOT a hurdle for the Unit

3. Mid-semester skills exam – **5%**

   - Week 8 – during lab session

   - On-campus assessment → ATC equipment

   - No re-sit

   - Do NOT need to pass this examination to pass the Unit

4. VLSM test 1 – **2.5%**

   - Week 7
   - Online Canvas quiz

5. VLSM test 2 – **2.5%**

   - Week 10
   - Online Canvas quiz

6. Group Lab Activities – **15%**

   - Weeks 5, 6 and 11
   - Groups of 3-4 students from the same lab session
   - You must attend the lab session to participate
   - Activity based on lab practice. Handout will be provided via Canvas
   - Completed handout to be submitted via Canvas the **following week**

7. Final VLSM Assessment – **10%**

   - On-campus on Week 12
   - Resolve a VLSM exercise

8. Final Oral Defense – **40%**

   - Online interview – 12 mins. questioning
   - During **Exam Period**
   - 4 questions based on the Lecture content
   - Hurdle: MUST obtain a combined mark of 20/50 in your Final VLSM and Oral Assessments

9. Final Skills Assessment – **20%**

   - During **Exam Period**
   - Resit: Live Skills Demo → student to complete 2 configuration tasks during a live interview
   - Hurdle: MUST pass the Final Skills Assessment

Important links – Show and Tell

1. SmartRack – Lab: https://smartrack.ict.swin.edu.au → choose room

   Note: will work through it later as students start working on Lab 1

2. Canvas: https://swinburne.instructure.com → go to Unit

   - Canvas announcements are always IMPORTANT → Weekly announcements on home page

   - Activities and Lab handouts – print and/or read before Lab

   - Use discussion boards for questions

   - The Lecturer also uses the discussion boards to post examples on key topics

   - My suggestion: check discussions regularly

   - Echo360 not only for Lectures, but Other Teaching material, some related to the lab.

How to practice outside your Lab sessions

1. SmartRack (ATC Labs)

   - Real devices, best option

   - Outside your allocated lab time, only remote access ← will learn today

   - Equipment available to students if no class running ← Lab class schedule in Canvas.

2. Packet Tracer

   - Simulation tool – really good, but not exactly as real device

   - Download from Canvas – for Windows and MacOS

   - Demonstration next week

TUTORIAL

Role of Switches

1. Layer 2 communication
2. Interconnect many hosts to be in the same L2 segment: micro-segments
3. Forward (or commute) messages from one port to another
4. They build up *MAC address or CAM tables*: MAC address vs. Switchport
5. MAC addresses used to identify devices at layer 2
6. How: as packets pass through the ports ← L2 header includes source MAC address

Role of Routers

1. Layer 3 communication
2. Forward messages from one network to another
3. They build up *Routing Tables*: Destination Network vs. Exit interface (or next hop)
4. IP addresses used to identify devices and networks (family of devices) at layer 3
5. How? statically configured routes, or dynamically learnt via routing protocols.

SmartRack Access Demonstration

1. In the lab handout you will find instructions to use SmartRack on-campus and remotely → follow accordingly
2. If **on-campus** → MUST use the kit specified in the desk label
3. Demonstration: Access devices via SmartRack
4. Generic Wiring Scheme → In lab handout, you will observe/validate during your lab practice today.