



# COMP1002 FOUNDATIONS OF COMPUTING

## Summary

<b>Title</b>	Assessment 1
<b>Type</b>	Practical
<b>Due Date</b>	Monday 13 May 11:59 pm AEST/AEDT (start of Week 3)
<b>Weighting</b>	30%
<b>Submission</b>	Word document submitted to Turnitin (for written assessments) Packet Tracer submitted through the submission link
<b>Academic Integrity</b>	Contract cheating in this assignment is strictly prohibited. Any breach may have severe consequences. Please read the Academic Integrity section below carefully. Generative artificial intelligence (GenAI) tools, such as ChatGPT, may be used for this assessment task.
<b>Unit Learning Outcomes</b>	This assessment task maps to the following ULOs: ULO1: Install and configure hardware, software and networks for computers and mobile devices ULO2: Analyse and troubleshoot common issues affecting computers, mobile computing, software and other devices

## Rationale

This assessment is crafted to ensure students have a practical understanding of setting up and managing computer systems. Students will gain firsthand experience in creating functional computing environments by investigating and configuring various hardware and software components. This practical assessment also aims to develop students' abilities to analyse and troubleshoot common computer and mobile device network issues. Utilising Packet Tracer or similar tools allows for a detailed and immersive learning experience, aligning with the unit's learning outcomes of installing, configuring, and maintaining networked systems effectively.

## Task Description

In this task, you are required to investigate the various components of computer hardware and software to ascertain the necessary arrangements for setting up, configuring, and troubleshooting a computer system. Additionally, you will accurately establish the network using Packet Tracer



or an equivalent network simulation tool and carry out key procedures for overseeing the network configuration. This comprehensive assessment includes four key tasks: designing a desktop PC, programming, updating a laptop or desktop system, and building a simple network. Each of these tasks is integral to understanding the full scope of responsibilities involved in managing and maintaining computer systems and networks.

## Task Instructions

### Part 1 – Designing a Desktop PC

**Objective:** To understand the hardware requirements and configurations needed for a desktop PC suitable for your student number based on the first digit.

Students number starting 0 to 3- Gaming PC | 4 to 7 - Office PC | 8 to 9 - Home PC

#### Instructions:

##### 1. Research and Requirements Gathering:

- Identify the general requirements for a desktop PC.
- Consider user-specific needs.

##### 2. Components Selection:

- For each of the following components, explain your selection and justify it with respect to features and use:
  - CPU (Processor)
  - GPU (Graphics Card, if necessary)
  - RAM (Memory)
  - Storage (HDD/SSD)
  - Motherboard
  - Power Supply Unit (PSU)
  - Cooling System
  - Computer Case
  - Monitor
  - Keyboard and Mouse



- Additional components (e.g., sound cards, optical drives, etc.)

### 3. Budgeting:

- Provide a total cost estimation for the desktop PC (online quote).
- List the prices for individual components.
- Stick to a predefined budget (e.g., Gaming PC \$2,500, Office PC \$1,750 and Home PC \$1300). If the total cost exceeds the budget, mention which components can be compromised and the associated trade-offs.

### 4. Compatibility and Efficiency:

- Ensure all selected components are compatible with each other.
- Explain potential bottlenecks and how they might impact overall system performance.

### 5. Report Writing:

- Compile your findings, justifications, and component list into a well-organised report.
- Include an online quote.

### Assessment Criteria:

1. **Justification:** Clear reasoning should be provided for each component choice.
2. **Budget Adherence:** The total cost should be within the given budget, with justifiable exceptions.
3. **Compatibility:** All components should work together without conflicts.
4. **Report Quality:** The report should be well-organised, free of grammatical errors, and present the information clearly.

## Part 2 – Programming

**Objective:** Demonstrate a basic understanding of the programming languages by writing a program that provides your personal information as output.

You should choose the programming language based on the first digit of your student number. If it starts with 0 to 5, choose Java; and if it starts with 6 to 9, choose Python.

Write a program that will display the following details:



- Your Name
- Your Student ID
- Degree Title
- The Unit Name (COMP1002\_Foundations of Computing)

#### Instructions:

1. Identify the requirement for running a program on the machine you have.
2. Check if that program is installed; if not, install it.
3. You should execute it using only a command prompt.
4. Your code should be neat and well-commented.

#### Submission:

- Submit a report explaining your steps, including instructions to install Java or Python, check the version, execute the command, etc.
- Provide screenshots of all important steps and results.

#### Assessment Criteria:

1. **Report Quality:** The report should be well-organised, free of grammatical errors, and present the information clearly.
2. **Presentation of the steps:** Anyone should be able to follow your steps and recreate the same.

#### Part 3 – Upgrading a laptop or Desktop System

**Objective:** Students demonstrate an understanding of basic computer maintenance and the importance of keeping systems updated.

You should choose a laptop or desktop based on the first digit of your student number. If it starts with 0 to 5, choose laptop; and if it starts with 6 to 9, choose desktop.



<p>The desktop is a custom-built PC with:</p> <ul style="list-style-type: none"><li>• Gigabyte Z390 Gaming HD Micro ATX motherboard</li><li>• Intel 8th Gen Core i5 i5-8500T @ 2.1GHz</li><li>• Nvidia GeForce GTX 1060 with 3GB RAM</li><li>• 2x 2GB DDR4 266 MHz RAM (4GB total)</li></ul>	<p>The laptop is Alienware 17 R4 (2017) with current specs are:</p> <ul style="list-style-type: none"><li>• Intel 8th Gen Core i7-7820HK CPU @ 2.90 GHz</li><li>• Nvidia's GeForce GTX 1080</li><li>• 2x 4GB RAM (8GB total)</li><li>• 1x 500 GB 2.5" hard disk drive</li></ul>
--	---

#### Instructions:

##### 1. Research Phase:

Research the latest updates or versions of software and hardware available for this system.

##### 2. Planning Phase:

- a. List down the steps you will take to update the system.
- b. Identify potential risks or issues you might encounter during the update.

##### 3. Execution Phase:

List your planned steps to update the system.

##### 4. Reflection Phase:

Write a short report on the updating process.

##### 5. Discussion Phase:

Discuss the importance of keeping a computer system updated regarding security and performance.

#### Submission Requirements:



- A document detailing the research and planning phases.
- Any screenshots or relevant evidence of the updated system.
- You must include:
  - Part name/model
  - Price
  - URL or location where it can be purchased.
  - Why does this item meet the requirements?

#### Assessment Criteria:

1. Comprehensive research on available updates.
2. Clarity and feasibility of the updating plan.
3. Depth and insight of the reflection on the process and importance of updates.

#### Part 4 – Setting Up a Network Environment with Basic Connectivity Using Packet Tracer

**Objective:** To gauge students' ability to design, implement, and validate basic network connectivity using Cisco Packet Tracer.

**Background:** Cisco Packet Tracer is a dynamic network simulation tool that allows users to experiment with network behaviour and refine networking concepts.

#### Instructions:

##### 1. Design Phase:

- a. Design a simple network topology as per the instructions.
- b. Clearly label all devices and use logical names for interfaces.

##### 2. Implementation Phase:

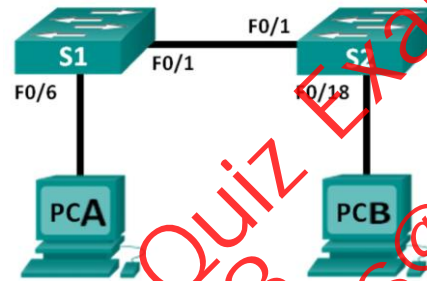
- a. Create the network topology in Packet Tracer according to your design.
- b. Assign appropriate IP addresses to all end devices.
- c. Test the basic connectivity between devices.



### Submission Requirements:

- Packet Tracer file (.pkt) containing your network topology and configurations.
- A detailed report documenting the design, implementation, and troubleshooting phases.

### Topology



### Addressing Table

Device	Interface	IP Address	Subnet Mask
PCA	NIC	192.168.[ ][ ]	255.255.255.0
PCB	NIC	192.168.[ ][ ]	255.255.255.0

You should choose the third and fourth octets of the IP address based on the first and last digits of your student number. For example, if your student number is 127849160, the first octet is 1, and the last octet is 0. So, the IP address of the first PC is 192.168.1.0, and the IP address of the second PC is the next number in sequence from that IP address (not based on your student number). In this case, the second PC's IP address is 192.168.1.1.

### Objectives:



- Task 1: Investigate binary values for IP Address and Subnet Mask
- Task 2: Set Up the Network Topology and configure PC Hosts
- Task 3: Configure Basic Switch Settings and verify configuration

### Background / Scenario

Networks are constructed of three major components: hosts, switches, and routers. In this lab, you will build a simple network with two hosts and two switches. You will investigate the relationship between the IP address and subnet Mask. You will also configure basic settings including hostname, local passwords, and login banner. Use **show** commands to display the running configuration, IOS version, and interface status.

You will apply IP addressing for this lab to the PCs to enable communication between these two devices. Use the ping utility to verify connectivity.

### Required Resources

- Packet Tracer
- 2 Packet Tracer Cisco 2960 Switches
- 2 Packet Tracer PCs
- Ethernet cables, as shown in the topology
- Investigate the relationship between IP Address and Subnet Mask (NOT ASSESSED)

### Task 1: Compute the binary values for PCA and PCB IP addresses and Subnet Masks

Device	IP Address	The binary version of the IP address
PCA		_____ . _____ . _____ . _____
PCB		_____ . _____ . _____ . _____





### Subnet Masks:

Device	Subnet Mask	The binary version of the Subnet Mask address
PCA		_____._____._____._____.
PCB		_____._____._____._____.

### Task 2: Configure PC settings.

Check the connection using the ping command and provide screenshots of the result.

#### Enter privileged EXEC mode.

You can access all switch commands in privileged EXEC mode. The privileged EXEC command set includes those commands contained in user EXEC mode, as well as the **configure** command through which access to the remaining command modes is gained. Enter privileged EXEC mode by entering the **enable** command.

```
Switch> enable
Switch#
```

The prompt changed from **Switch>** to **Switch#** which indicates privileged EXEC mode.

#### Enter configuration mode.

Use the **configuration terminal** command to enter configuration mode.

```
Switch# configure terminal
Enter configuration commands, one per line. End with CNTL/Z. Switch(config)#
```



Note: The prompt changed to reflect global configuration mode. You can use 'exit' to go back one level, or 'end' to go back to privileged exit mode directly. In this case exit would take you back to the privileged exec mode from Step 2 with prompt: Switch#

#### Give the switch a name.

Use the hostname command to change the switch name to S1.

```
Switch(config)# hostname S1
S1(config)#
```

#### Prevent unwanted DNS lookups.

To prevent the switch from attempting to translate incorrectly entered commands as though they were hostnames, disable the Domain Name System (DNS) lookup.

```
S1(config)# no ip domain-lookup
S1(config)#
```

#### Enter local passwords.

To prevent unauthorised access to the switch, passwords must be configured and a login is required on the console line (con 0).

```
S1(config)# enable secret class
S1(config)# line con 0
S1(config-line)# password cisco
S1(config-line)# login
S1(config-line)# exit
S1(config)#
```

#### Enter a login MOTD banner.



A login banner, known as the message of the day (MOTD) banner, should be configured to warn anyone accessing the switch that unauthorised access will not be tolerated.

The **banner motd** command requires the use of delimiters to identify the content of the banner message. The delimiting character can be any character as long as it does not occur in the message. For this reason, symbols such as the #, are often used.

**Important:** Please enter the following banner exactly as written. Using the correct and approved language is critical to ensure that legal requirements are met. If you change any character in the **Unauthorised access is strictly prohibited and prosecuted to the full extent of the law.** (including the final full-stop at the end) the banner will be marked as incorrect as it does not exactly meet the requirement:

```
S1(config)# banner motd' Unauthorised access is strictly prohibited and prosecuted to the full  
extent of the  
law.'  
S1(config)# exit  
S1#
```

### Task 3: Verify Basic Switch Settings

#### Configure Switch S2.

Repeat Steps 1 to 7 for Switch S2 – make sure that the name for Switch 2 is correctly configured as S2.

The **show running-config** command displays the entire running configuration, one page at a time. Use the spacebar to advance paging when you see the "- - More -" prompt. The commands configured in Steps 1 – 8 are highlighted below for S1. Also confirm for S2.

```
S1# show running-config
```

<Copy and paste the configuration file.>

#### Assessment Criteria:



1. Proper design and labelling of the network topology.
2. Correct IP addressing and configuration of devices.
3. Successful establishment of basic connectivity between devices.
4. Quality and thoroughness of the documentation.

## Task Submission

When you have completed the assignment, you are required to submit the following:

- The cover sheet filename = [FirstInitialLastName]\_COMP1002\_A1.pdf (i.e. rghanbarzadeh\_COMP1002\_A1.pdf)
- The task sheet filename = [FirstInitialLastName]\_COMP1002\_task number\_A1.pdf (i.e. rghanbarzadeh\_COMP1002\_Task 1\_A1.pdf)
- Your Packet Tracer file with all devices configured and saved named in the format: filename = FirstInitialLastName\_COMP1002\_Task 4\_A1.pkt (or .pka) (i.e. rghanbarzadeh\_COMP1002\_Task 4\_A1.pka)

## Academic Integrity

At Southern Cross University, academic integrity means behaving with the values of honesty, fairness, trustworthiness, courage, responsibility and respect in relation to academic work.

The Southern Cross University Academic Integrity Framework aims to develop a holistic, systematic and consistent approach to addressing academic integrity across the entire University. For more information, see: [SCU Academic Integrity Framework](#)

**Note:** Academic Integrity breaches include poor referencing, not identifying direct quotations correctly, close paraphrasing, plagiarism, recycling, misrepresentation, collusion, cheating, contract cheating and fabricating information.

At SCU, the use of GenAI tools is acceptable *unless it is beyond the acceptable limit as defined in the Assessment Item by the Unit Assessor*.

**GenAI May be Used** - Generative artificial intelligence (GenAI) tools, such as ChatGPT, **may be used** for this assessment task. If you use GenAI tools, you must use these ethically and acknowledge your use. To find out how to reference GenAI in your work, consult the referencing style for your unit [via the Learning Zone](#). If you are not sure how to, or how much, you can use GenAI tools in your studies, contact your Unit Assessor. If you use GenAI tools without acknowledgment, it may result in an academic integrity breach against you, as described in the [Student Academic and Non-Academic Misconduct Rules, Section 3](#).

## Special Consideration

Please refer to the Special Consideration section of the Policy. <https://policies.scu.edu.au/document/view-current.php?id=140>



## Late Submissions & Penalties

Please refer to the Late Submission & Penalties section of Policy. <https://policies.scu.edu.au/view.current.php?id=00255>

## Grades & Feedback

Assessments that have been submitted by the due date will receive an SCU grade. Grades and feedback will be posted to the 'Grades and Feedback' section on the Blackboard unit site. Please allow 7 days for marks to be posted.

## Description of SCU Grades

### High Distinction:

The student's performance, in addition to satisfying all of the basic learning requirements, demonstrates distinctive insight and ability in researching, analysing and applying relevant skills and concepts, and shows exceptional ability to synthesise, integrate and evaluate knowledge. The student's performance could be described as outstanding in relation to the learning requirements specified.

### Distinction:

The student's performance, in addition to satisfying all of the basic learning requirements, demonstrates distinctive insight and ability in researching, analysing and applying relevant skills and concepts, and shows a well-developed ability to synthesise, integrate and evaluate knowledge. The student's performance could be described as distinguished in relation to the learning requirements specified.

### Credit:

The student's performance, in addition to satisfying all of the basic learning requirements specified, demonstrates insight and ability in researching, analysing and applying relevant skills and concepts. The student's performance could be described as competent in relation to the learning requirements specified.

### Pass:

The student's performance satisfies all of the basic learning requirements specified and provides a sound basis for proceeding to higher-level studies in the subject area. The student's performance could be described as satisfactory in relation to the learning requirements specified.

### Fail:

The student's performance fails to satisfy the learning requirements specified.

## Assessment Rubric



Marking Criteria and % allocation	High Distinction (85–100%)	Distinction (75–84%)	Credit (65–74%)	Pass (50–64%)	Fail 0–49%
<b>Justification of Components (LO1)</b> 20%	Provides comprehensive, insightful justifications for each component selection. Demonstrates an advanced understanding of component synergy and their cumulative effect on overall system performance.	Justifications are thorough and demonstrate a strong understanding of component functions and their impact on performance. Minor details may lack depth.	Justifications are satisfactory; connections are made clear, but the rationale may not fully capture the strategic value of each component.	Justifications meet minimum criteria, showing basic understanding and relevance to system needs. Some components lack proper rationale.	Component choices are not justified with logical reasoning, showing a fundamental misunderstanding or misapplication of system requirements.
<b>Budget Adherence (LO1)</b> 10%	Exemplary budget management, staying within limits while maximising system efficiency. Provides a comprehensive cost-benefit analysis for each choice, highlighting economic efficiencies.	Stays within budget for most components, with overages well-explained and justified through detailed analysis.	Budget generally respected with some unexplained or poorly justified deviations.	Budget overages are evident with minimal justification, showing lack of planning or foresight.	Disregards budget constraints; fails to provide financial justifications or plan effectively.
<b>Component Compatibility (LO1)</b> 20%	Selections demonstrate an exceptional understanding of technical compatibility, with all components perfectly synchronised to maximise performance.	Very good compatibility among components, with only minor adjustments needed to optimise functionality.	Components are selected with functionality in mind, though some minor compatibility issues are noted and require adjustments.	Some components show compatibility issues that could hinder system performance, indicating a need for better selection.	Incompatible components selected, leading to functional failures or significant performance bottlenecks.



<b>Network Configuration and Testing (LO2)</b> 25%	Network is expertly configured and thoroughly tested, showcasing advanced troubleshooting skills and a perfect operational setup.	Network configuration is robust, with effective troubleshooting of minor issues. Demonstrates proficient testing practices.	Network setup is functional; issues during testing are addressed, but more optimal configurations could be explored.	Network meets operational requirements but exhibits basic or flawed configurations, with minimal testing.	Network setup is fundamentally flawed or incomplete, showing a lack of understanding in configuration and testing protocols.
<b>Quality and Organisation of Report (LO1, LO2)</b> 25%	Report is impeccably organised with a logical structure that enhances comprehension and showcases a high level of professional presentation. Information is articulated clearly and compellingly, with advanced integration of diagrams and data.	Report is well-organised, presenting information clearly and effectively with good use of visual aids. Minor issues in data integration or presentation style.	Report is organised in a logical order, some sections may lack clarity or detail, affecting the smooth flow of information.	The report meets basic requirements but is disorganised or unclear in places, detracting from the reader's ability to easily understand the content.	Report lacks coherent structure, with numerous clarity and organisation issues, significantly impeding reader understanding.

## Assessment Criteria

### Part 1

- Justification: Clear reasoning should be provided for each component choice.
- Budget Adherence: The total cost should be within the given budget, with justifiable exceptions.
- Compatibility: All components should work together without conflicts.
- Report Quality: The report should be well-organised, free of grammatical errors, and present the information clearly.

### Part 2

- Report Quality: The report should be well-organised, free of grammatical errors, and present the information clearly.
- Presentation of the steps: Anyone should be able to follow your steps and recreate the same.



### Part 3

- Comprehensive research on available updates.
- Clarity and feasibility of the updating plan.
- Depth and insight of the reflection on the process and importance of updates.

### Part 4

- Proper design and labelling of the network topology.
- Correct IP addressing and configuration of devices.
- Successful establishment of basic connectivity between devices.
- Quality and thoroughness of the documentation.

Assignment Project Quiz Exam Essay Help  
WeChat: cestbon\_6888  
Email: accoder\_overseas@163.com