

## Presentation

The assessment must be submitted electronically with a Cover Page that includes the following information:

- Assessment No
- Assessment Title
- Student Name & ID
- Subject Name and Code
- Student Email Address
- Students must ensure that all tasks/questions are identified clearly with headings.
- Answers to the questions must be in your own words and should be precise but complete and informative. No marks will be awarded for any answer containing more than 10% direct quotes (referenced or unreferenced).
- APA reference style must be used throughout the document with the bibliography at the end of the document. In-text citations should also follow APA style. APA referencing guide can be accessed via the following link. This also forms a part of the marking rubric.<http://student.csu.edu.au/study/referencing-at-csu>

**Please note:** Assessment MUST be submitted as ONE MS Word file via Turnitin. Please do not submit \*.zip or \*.rar or multiple files. Assessments are marked and feedback is attached using a MS Word-based tool. Reports that are submitted in PDF format will be re-formatted to Word format in order to be marked. Allowances will **not** be made for any loss of information, diagrams or images as a result of the re-formatting.

## Assessment item 3

### Network Design

**Value:** 30%

**Due Date:** 12-May-2019

**Return Date:** 04-Jun-2019

**Length:** 500-700 words

**Submission method options:** Alternative submission method

### Task

### Task

#### Task 1 (Research) [5 marks]

In this task, you are required to research a range of options/methods that can be used for network designing in this assessment. Based on your research you are required to clearly list your views on pros and cons of each available option for the completion of this assessment and select an option that you will use to complete this assessment.

#### Task 2 - Setting up a Network [10 marks]

You are required to set up a network consisting of PCs, routers, switches and servers. You need to configure routing between routers, use any dynamic routing protocol. The PCs (clients) will be connected to switches and switches to the router's interfaces. Clients and Servers are

connected on different networks (don't attach clients and servers on same network).

Client(s) <--> Switch <--> Router <--> Router <--> Switch <--> Server(s)

Use ONLY the **IP address which you calculated in Assignment 2.**

Perform the following activities and support your workings with screenshots [10 marks]:

1. Configure the PCs, Server and Router interfaces with appropriate network addressing;
2. Configure any classless dynamic routing protocol on the routers;
3. On any client, ping the client's own network interfaces, then the local router gateway interface, then the remote router interface, then the servers. Check full network conductivity;
4. Use the traceroute command from the client to the server. Include results of the traceroute in your submission, explaining meaning of traceroute output.

### **Task 3 - Configuring Network Services** [10 marks]:

Using the same network topology that you have setup in Task 1, perform the following additional activities

- 1.**DHCP:** Configure DHCP servers and show that the client PC has successfully received IP Addresses and other network parameters (default gateway, subnet mask and DNS IP address) using DHCP
- 2.**WEB Server:** Configure WEBs server on the dedicated machines in their specified networks, with URL as ***yourname.csu.org***
- 3.**DNS:** Configure DNS Servers on the server device and demonstrate that forward and reverse DNS are working from the client PC; test DNS Server by browsing *yourname.csu.org* from client PC, DNS must resolve this URL to IP address of WEB Server
- 4.**Firewall:** Configure traffic filtering on the web servers to block ONLY HTTP TCP traffic between one of the client PCs and WEB Servers and allowing all other IP traffic, provide evidence of such traffic filtering. You should verify firewall by using PING and HTTPS TCP traffic which should not be blocked.

A series of screenshots with commentary on each of the required tasks is to be submitted. The submission must include a comprehensive explanation of each task and all the commands used along with the output (or final result) in report format.

### **Task 4** [5 marks]

Task 4 will be given to you by your lecturer 7 days before date due. This is to allow everyone to work in this timeframe and to prevent unauthorized assistance with your work. This task is face to face questioning and answering with your lecturer, and must be completed during class time before the due date.

### **Rationale**

This assessment task will assess the following learning outcome/s:

- be able to analyse IP addressing requirements and design an addressing scheme.
- be able to analyse the requirements of IP routing and choose appropriate routing methods.
- be able to demonstrate how internetworking devices obtain their network configuration.
- be able to ascertain and evaluate selection of applications and protocols for

transferring data across the internet.

This assessment is designed to enhance analytical skills, planning and design capabilities of students under some predefined requirements. In particular, the assessment covers the following learning objectives:

- be able to analyse IP addressing requirements and design an addressing scheme;
- be able to analyse the requirements of IP routing and choose appropriate routing methods;
- be able to demonstrate how internetworking devices obtain their network configuration;
- be able to explain how data flows through the internet; and
- be able to ascertain and evaluate selection of applications and protocols for transferring data across the internet;

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### **Marking criteria and standards**

<b>Criteria</b>	<b>HD</b>	<b>DI</b>	<b>CR</b>	<b>PS</b>	<b>FL</b>
<b>Task 1</b>	Integrates	Integrates	Integrates	Uses	Content of

Understanding of content and use of evidence (3 Marks)	information from modules, readings, and several other credible and high-quality sources that you have found yourself.	information from modules, readings, and several other credible sources that you have found yourself.	information from modules, readings, and 1-3 other credible sources that you have found yourself.	information from the modules and readings.	post is unsupported by evidence
<b>Task 1</b> Referencing & Language (2 Mark)	APA in-text and end-of-text referencing guidelines are error free and consistently applied.  correct spelling, punctuation, and paragraphing with no errors.	There are some minor errors in APA in-text and end-of-text referencing.  correct spelling, punctuation, and paragraphing with only minor punctuation errors	There are noticeable errors in APA in-text and end-of-text referencing. Minor editing and revision is needed.  correct spelling, punctuation, and paragraphing with a few errors.	Frequent and noticeable errors in both in-text and end of text referencing but the major identifiable information are present.  spelling, punctuation, and paragraphing with some notable errors.	APA referencing is absent or with multiple errors that make it difficult to identify the source.  poorly written and hard to understand.
<b>Task 2</b> Setup a Network (10 Marks)	Demonstrated exceptional judgement and analysis of a fully working network model with comprehensive description supported by high-quality diagrams.	Demonstrated good judgement and analysis of a fully working network model with good description supported by good quality diagrams.	Demonstrated sound judgement and analysis of a fully working network model with brief description supported by some diagrams.	Demonstrated some analysis with a partially working network model with some description.	Major errors in the submission. Working network model not completely demonstrated.
<b>Task 3</b> Configuring network services (10 Marks)	Demonstrated exceptional judgement and analysis of a fully configured network model with	Demonstrated good judgement and analysis of a fully configured network model with	Demonstrated sound judgement and analysis of a fully configured network model with	Demonstrated limited analysis with a partially configured network model with some	Major errors in the submission. Network service operation not completely demonstrated.

	comprehensive description supported by high-quality diagrams.	good description supported by good quality diagrams.	brief description supported by some diagrams.	description.	
<b>Task 4</b> (5 Marks)	Task 4 will be given to you by your lecturer 7 days before date due. This is to allow everyone to work in this timeframe and to prevent unauthorized assistance with your work. This task is face to face questioning and answering with your lecturer, and must be completed during class time before the due date.				

### Presentation

Please note that this assessment is asking for your reflections/thoughts and understanding of the topic. Therefore refrain from directly copying and pasting from other sources. I encourage wider reading to increase your knowledge base however proper referencing guidelines MUST be followed (please refer to the APA referencing guide in student resources) otherwise your work can be reported for plagiarism.

We have a very diverse learning group with students from different parts of the world, and it is important to respect that with such a diverse group, everyone's ability to express themselves in written language can vary. Therefore it is important to **respect** diversity and opinions different from yours, no matter where they come from. Let us all also be mindful that written communication can be easily misinterpreted, therefore please be careful and avoid using strong words so we don't cause confusion and/or anxiety for our peers.

**Please ensure that (all tasks) mentioned in this Assessment must be submitted in the Turn-it-in.**

### Assessment item 4

#### Final Exam

**Value:** 50%

**Due Date:** To be advised

**Duration:** 2 hours 10 minutes

**Submission method options:** N/A - submission not required/applicable

#### Requirements

Students are required to sit and pass the final exam in this subject to be eligible for a passing grade. The exam is worth 50% of the total marks in this subject.

It is the student's responsibility to ensure that they are aware of the requirements for