Assessment Guide

ITEC201 Fundamentals of Information Technology

Semester 2, 2022

Assessment 3

Assessment Artefact: Design Report

Weighting [50%]

Why this assessment?

|  |  |
| --- | --- |
| Skill Type |  |
| Developed critical and analytical thinking | ☒ |
| Developed practical skills to solve problems | ☒ |
| Developed knowledge in the field study | ☒ |
| Developed work-related knowledge and skills | ☒ |

* Plan and design a network solution for an organisation
* Gain practical skills on network design, operation and maintenance
* The feedback from this assessment will help students to understand the level of knowledge and skills need to solve real-world problems.

What are the types of employability skills that I will acquire upon completion of this assessment?

Assessment Overview:

The purpose of this assessment is to develop professional skills through the application of theoretical knowledge and understanding of networking technologies and designing network solutions for a small organisation.

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| --- | --- |
| Due date | TBA (Report submission) |
| Weighting | 50% |
| Length and/or format | 1200 words |
| Assessment type  | Individual |
| Learning outcomes assessed | LO3, LO4 |
| Graduate attributes assessed | GA3, GA5, GA10 |
| How to submit | Turnitin |
| Return of assignment | Within 3 weeks of submission  |
| Assessment criteria | Rubric: see end of the document |

Context

This assessment task requires to analyse a network scenario, design the network architecture and recommend IT solutions including ethical, security and sustainability considerations. The purpose of this assessment is to assess your ability to apply theoretical understanding about hardware, software and networking concepts when planning and designing IT solutions for a small organisation.

Instructions

This is an individual assessment. As per the warning given in the first lecture, you should be careful not to use the work of others as your own nor have others use your work as their own.

AT3 has two parts. Each part is **25 marks** worth. For the first part, you have to sit for the MS certification exam (Azure Fundamentals). The exam is on-campus (subject to Covid restrictions) and the duration is 90 minutes. The marks you will obtain the exam will be converted accordingly. The exam date will be announced later. For the second part of the assessment, you have to write a design report on the given case study. Please carefully read the following network scenario.

Network Scenario:

Suppose you are a network administrator of the ABC company. The company has two local departments: HR and Finance. Currently, the departments are running on two separate networks and the network/system performance is very poor. As a network administrator, you are asked to redesign the network so that they are interconnected, and all systems can access the Internet using a single ISP connection. The following details the individual requirements of each department.

1. **HR department:** This network will have 20 PCs, one IP phone and one wireless printer. All computers must be connected to the Internet. More devices can be added to this network in future.
2. **Finance department:** This network will have 22 PCs, 2 IP phones, 1 wireless printer and 1 scanner. All computers must be connected to the Internet. The systems must be secure and reliable. More devices can be added to this network in future.



Figure : A Sample network connecting two LAN segments

Report Structure

**Feed Forward Template:**

You must complete and submit this template as the first page of the follow-on assignment (assessment 2 and 3). The template can be found on page 6 (Appendix-I).

**Checklist:**

You must submit the assignment checklist as instructed on page 7 (Appendix-II).

**Introduction (100 words):**

In the Introduction, you are attempting to inform the reader about the rationale behind the work. The introduction does not have a strict word limit, unlike the abstract, but it should be as concise as possible. It can be a tricky part of the paper to write, so many scientists and researchers prefer to write it last, ensuring that they miss no major points. An introduction should emphasize on background, importance, limitations, and assumptions. *You should provide a short overview of the network scenario, goals, and methods in this section.*

**Physical Topology (75 words):**

In this part, you have to design a physical topology for the given network scenario. A physical network topology diagram will include icons of elements like workstations, servers, routers, and switches, while the lines between these elements represent cable connections. Note that the physical topology need not to be 100% correct as your network design may need to be changed later. Here is an example of the physical topology.



Figure 2: An example of physical topology

**Hardware and Software Components (400 words):**

In this section, you need to identify hardware and software components for the network. You need to consider *cost, speed, and other features (CPU, RAM, HDD etc.)* when selecting the components. You may categorise the components as follows.

1. Hardware Requirements- End devices, Network devices, Others
2. Software Requirements- Operating System, Application software (features & services)

**Reliability & Expandability (100 words):**

Reliability and expandability are two key features of any networks. The network must be fault tolerant and expandable. There should be a backup plan/system to handle any unexpected events. You need to consider the cost and performance when designing a reliable and expandable network solution.

**IP Addressing (100 words):**

IP addressing will have significant impacts on the future extension of the network. You need to decide whether you will be using IPv4 or IPv6. Whatever you are choosing, you need to justify your selection. You need to subnet the networks in an efficient way to ensure optimal use of available IP addresses. In this section, you need to provide a table of IP address and subnet masks for each device of the network.

**Logical Topology (75 words):**

Logical Topology is the arrangement of network devices and nodes to form a logical or physical structure. You need to provide a diagram of the logical topology and write a short description of each subnetwork. See below an example of the logical topology.



Figure : An example of logical topology

**Ethical, Security and Sustainability Issues (250 word):**

There are a number of issues related to ethics, security and sustainability when designing a network. In this section, you need to consider issues like professional ethics and standards, impacts of security breaches, and sustainability of the network. You also need to highlight the measures implemented to overcome the challenges related to ethical, security and sustainability issues.

**Conclusion (100 words):**

This section can help the reader absorb your finding a little more. In a few lines, you should summarize your findings. You can also provide some recommendations based on your design.

**References:**

All papers that are used in the report must be cited in the reference section. More information can be found in the referencing section.

**Appendix:**

You can add additional information such as graphs, tables, and images in the appendix section.

How do I submit?

You must submit your report via Turnitin. The report submission deadline is on **week 14/15**. The assignment submission links can be accessed from the Assessments section on the LEO site. Assessments submitted after the due date will incur a late penalty of 5% for each calendar day the assessment is late. Note that if the assignment is submitted three days later the due date, you will not receive any mark.

**Some Helpful Websites and Resources**

<https://www.pearsonhighered.com/assets/samplechapter/1/5/8/7/1587132125.pdf>

ITEC201 textbook: Chapter 9

**Who can help me?**

* Academic skills Unit (ASU)
* Post a question to the LEO discussion forum
* Consult with your lab instructor or campus lecturer.
* Make an appointment with the CL: Dr Kamanashis Biswas (kamanashis.biswas@acu.edu.au)

**I’m having problems**

[SC: Application for Special Consideration](https://www.studentportal.acu.edu.au/-/media/acu/portal/pdfs/sc_application_for_special_consideration.pdf) Complete this form if you wish to be exempted from academic penalty because your study has been affected by unforeseen circumstances.

EX: [Application for extension of time for submission of an Assessment Task](https://leo.acu.edu.au/pluginfile.php/3714872/mod_resource/content/2/EX%20-%20Application%20for%20Ext%20Time%20for%20Submission%20of%20Assessment.pdf) Complete this form if you wish to apply for extension of time for submission of this Assessment Task.

Referencing

Please ensure that you reference properly and acknowledge all sources using an appropriate referencing style (check LEO for guidelines).

Please ensure your assignment makes use of in-text citations and a reference list. Missing citations or references is equivalent to plagiarism.

Criteria

The full criteria are compiled in a rubric, which can be found on page 8 (Appendix-III).

**Appendix-I: Feed Forward Template (Example): A Template for Students to Use and Act on Feedback and Provide Recommendations for Improvement**

This must be submitted as the first page of the follow-on assignment (assessment 2 and 3) to ensure you acted on the feedback provided to you in the previous assignment. (this is not counted as part of the assessment word count).

## How did you act on the feedback?

Feedback is an important component of learning. Please consider the feedback you received in your previous assignment and provide a response on how you acted on, or intend to act upon, that feedback, and how it has informed the current assignment task. Submit this sheet along with your assignment.

|  |  |
| --- | --- |
| **Example Questions** | **Feedback recommendation (what I learnt from the feedback and what works for me)** |
| **1. How have you acted on the feedback from previous assignment to improve your work in this assignment?** | (e.g., based on my previous feedback, I made sure that I supported my discussion, position, ideas, concepts with peer reviewed journal references in this assignment.) |
| **2. What is your expectation around the type of feedback that enhances your learning?** | (e.g., I want to know where I made a mistake and howI can correct them and not make the same mistake again i.e. I want specific feedback that will help me to improve my learning and performance in the next assignment.) |
| **3. Did you have any difficulty understanding or acting on previous feedback? Please be as specific as possible so that you can gain further feedback/clarify anything that you do not understand in the feedback.** | (e.g., feedback provided in my previous assignment was very generic and vague and I did not know how to improve my work. So, I would like the lecturer to explain more on xxxx aspects of the feedback or I would like an opportunity to have a dialogue to understand the feedback.) |

**Appendix II: Assignment Checklist**

You must submit this checklist with your assignment. The second page of your submission should include the completed checklist. Please tick on the checkbox for the tasks you completed.

|  |  |
| --- | --- |
| My submitted assignment report is within the specified word limit | ☐ |
| I have included references using specified referencing style | ☐ |
| I have correctly cited all my sources and references | ☐ |
| I have formatted my report as per the specifications | ☐ |
| I have checked my Turnitin report to ensure the similarity report is within the acceptable level (below 20% similarity) | ☐ |
| I have included specified process output in my submission (e.g. reflection report, e-portfolio submission, video summary, screen dump of my search and retrieval of journal articles, etc.) | ☐ |
| I have actioned feedback advice provided to me from previous assignment feedback (ifapplicable) | ☐ |
| I have completed proof reading and checked for spelling and grammar | ☐ |
| I have submitted my work before the due date/time | ☐ |
| I have submitted feed forward template along with my assignment submission | ☐ |

Appendix-III: Rubric for ITEC201- Assessment Task 3- Design Report (25%)

|  |  |  |
| --- | --- | --- |
| **Learning Outcomes** | **Criteria** | **Standards** |
| **Below Expectations** | **Meets Expectations** | **Exceeds Expectations** |
| NN (0-49) | PA (50-64) | CR (65-74) | DI (75-84) | HD (85-100) |
| GA5LO3, 4Weight: **15** marksTL: 5Learning Stage: A | Demonstrate good level of knowledge and skills in network design and planning in terms of topology design, hardware and software selection, IP addressing and subnetting.  | Failed to design the network solutions as per requirements.The design is incomplete, inaccurate and inconsistent. | Partly designed the network solutions as per requirements. Identified some network components; IP addresses and subnet marks are assigned correctly for few devices.  | Credibly designed the network solutions as per requirements.Mostly identified network components; IP addresses, Subnet masks are assigned correctly for most of the devices.  | Very effective network design in terms of hardware and software components selection, topology design, IP addressing, subnetting, fault tolerance and expandability. The report also provides evidence of impact analysis for any changes in the design. | Highly effective and optimal network design in terms of hardware and software components selection, topology design, IP addressing, subnetting, fault tolerance and expandability.The report analyses impacts of changes in the design and suggests recommendations to minimise the impacts.  |
| GA3LO4Weight: **5** marksTL: 5Learning Stage: D | Report showcasing critical evaluation of security, sustainability and ethical issues in network designs and how they affect the design paradigm.  | Failed to critically evaluate security, sustainability and ethical issues in the network design and informed decision making. | Show little evidence of critical evaluation of security, sustainability and ethical issues in the network design and informed decision making. | Show credible evidence of critical evaluation of security, sustainability and ethical issues in the network design and informed decision making. | Show distinctive evidence of critical evaluation of security, sustainability and ethical issues in the network design and informed decision making. | Show highly distinctive evidence of critical evaluation of security, sustainability and ethical issues in the network design and informed decision making. |
| GA10LO2Weight: **5** marksTL: 3Learning Stage: A | Report demonstrating good command of required knowledge on utilising appropriate communication models and networking components.  | Content under-developed; failed to utilise appropriate models/networking components in the report. | Content reasonably linked; adequately utilised relevant models/networking components in the report. | Content appropriately linked; credibly utilised relevant models/ networking components in the report. | Close link shown in contents; shows distinctive use of relevant models/networking components in the report. | Tightly coupled underlying concepts as per requirements; highly distinctive use of relevant models/networking components in the report. |
| **Notes:** GA – Graduate Attribute; LO – Learning outcome; TL – Taxonomy Level (see Bloom’s Taxonomy); Learning Stage – Introduced (I), Developed (D), Assured (A) |