Logo: Cardiff Metropolitain University

School of Technologies

### Assessment

### Brief

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| Module Code | Module Title |
| CNT 4008 | Fundamentals in Networking / Network Solution for ZoomTech Corporation |
| Academic Year | Semester |
| 2024 | 2 |
| Module Leader email | |
| aruna@icbtcampus.edu.lk | |

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# Assessment Details

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| Assessment title | Abr. | Weighting |
| Fundamentals in Networking / Network Solution for ZoomTech Corporation | WRIT1 | 50% |
| Pass marks are 40% for undergraduate work and 50% for postgraduate work unless stated otherwise. | | |

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| Task/assessment brief: |
| ZoomTech Corporation is a medium-sized company specializing in distributing office supplies and equipment. The company has its headquarters in Kandy and multiple branches across Sri Lanka. The company wants to modernize its IT infrastructure by designing and implementing a centralized client-server network to streamline operations, improve communication, and enable efficient file sharing between the headquarters and branches.  The headquarters houses Finance, HR, Logistics, Sales, IT, and Customer Support departments. Each branch consists of Sales, Logistics, and Customer Support departments.  1. Report on Networking Basics (LO 01)  a. Explain the concept of computer networking and discuss how it can benefit a business like StarTech Supplies Corporation. (5 Marks) b. Describe different types of networks (LAN, WAN, MAN, etc.) and recommend the most suitable network type for StarTech's operations. Justify your recommendation. (5 Marks) c. Compare wireless and wired networks, outlining their benefits and drawbacks, and suggest which solution (or combination) would be most practical for StarTech. (5 Marks)  2. Research on Networking Devices and the OSI Model (LO 02)  a. Explain the roles of key networking devices such as routers, switches, hubs, servers, and access points. Recommend the necessary components for implementing StarTech’s network. (5 Marks) b. Map the recommended devices to the OSI reference model and highlight the associated protocols (e.g., HTTP, FTP, TCP/IP). Justify the relevance of each device within the context of StarTech’s network. (5 Marks)  3. Designing StarTech’s Network (LO 03)  a. Create a network topology diagram illustrating the connections between the headquarters and branches. Use an appropriate topology (e.g., star, mesh, hybrid) and label devices and departments. (8 Marks) b. Discuss how network security will be implemented to protect sensitive data and ensure secure communication. Address firewalls, VPNs, encryption, and access control measures. (7 Marks)  4. Network Monitoring and Troubleshooting Plan (LO 04)  a. Explain the importance of monitoring and troubleshooting a network, detailing why proactive monitoring is crucial for StarTech’s business continuity. (5 Marks) b. Identify common network issues (e.g., latency, connection drops, device failures) and propose strategies to diagnose and resolve these problems effectively. Recommend tools for managing these issues. (5 Marks) |

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| Word count (or equivalent): | **4000** |
| This a reflection of the effort required for the assessment. Word counts will normally include any text, tables, calculations, figures, subtitles and citations. Reference lists and contents of appendices are excluded from the word count. Contents of appendices are not usually considered when determining your final assessment grade. | |

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| Academic or technical terms explained: |
| OSI - Open Systems Interconnection  VPN – Virtual Private Network  IP – Internet Protocol  Vandalism - Activity Wherein Public Or Private Property Is Intentionally Damaged Or Destroyed.  **Understanding -**  Selected an appropriate network topology for ZoomTech Corporation based on the requirements provided. Evaluate if they have justified their selection and discussed the types of servers needed for the super market, considering factors such as scalability, redundancy, and security.  **Design -**  Evaluate the suitability and clarity of the network design provided by the student. Assess if they have created a detailed network diagram using appropriate tools like Visio, including subnetworks for each department with correct IP addresses. Ensure that the design matches the specifications of MUJAX Super Market Chain and provides connectivity between departments and to the main server.  **Evaluate -**  Identification and explanation of network hardware and communication devices aligned with super market network operations. Verify if they accurately map these devices to the OSI reference model. Evaluate their understanding of different network protocols and their mapping to the OSI model.  Consider the depth of analysis and critical thinking demonstrate throughout the assignment. Assess their ability to identify potential issues and propose effective solutions, as well as their ability to justify their design decisions based on industry best practices and the specific needs of the super market.  **Guidelines for the report format**   * Submission format Report * Paper Size: A4 * Words: 4000 words * Printing Margins: LHS; RHS: 1 Inch * Binding Margin: ½ Inch * Header and Footer: 1 Inch * Basic Font Size: 12 * Line Spacing: 1.5 * Font Style: Times New Roman * **Referencing should be done strictly using Harvard system** * All citation should be given as per "***Harvard Referencing Style***" for Text, Tables and Figures * Late submission will be penalized * Please refer to the ICBT student handbook for further details * **Improper report structure will lead to a reduction in the total marks.**   ***Note: Any kind of copying and plagiarized text will lead to automatic Re-submission.*** |

# Submission Details

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| Submission Deadline: | This will be provided on the Moodle submission point. | Estimated Feedback  Return Date | This will normally be 20 working days after initial submission. |
| Submission  Time: | By 2.00pm on the deadline day. |  | |
| Moodle/Turnitin: | **Any assessments submitted after the deadline will not be marked and will be recorded as a non-attempt unless you have had an extension request agreed or have approved mitigating circumstances. See the School Moodle pages for more information on extensions and mitigating circumstances.** | | |
| File Format: | The assessment must be submitted as a pdf document (save the document as a pdf in your software) and submit through the Turnitin submission point in Moodle.  **Your assessment should be titled with your:**  **student ID number, module code and assessment ID,**  **e.g. st12345678 BHL5007 WRIT1** | | |
| Feedback | Feedback for the assessment will be provided electronically via Moodle. Feedback will be provided with comments on your strengths and the areas which you can improve. View the [guidance](https://learn.cardiffmet.ac.uk/mod/glossary/showentry.php?courseid=8107&eid=9581&displayformat=dictionary) on how to access your feedback.  All marks are provisional and are subject to [quality assurance processes](https://outlookuwicac.sharepoint.com/:b:/s/QED/Ec3kYQQeEHdKrCbo_tJnr2kBomIiiLINmPebUgvTUljq9Q?e=a0G2z5) and confirmation at the programme Examination Board. | | |

# Assessment Criteria

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| Learning outcomes assessed |
| * LO 1 : Explain the fundamentals of networking * LO 2 : Explain the functions of networking components * LO 3 : Design a client server networked Environment * LO 4 : Build and troubleshoot client server networked Environment |
| Other skills/attributes developed  This includes elements of the Cardiff Met EDGE (Ethical, Digital, Global and Entrepreneurial skills) and other attributes developed in students through the completion of the module and assessment. These will also be highlighted in the module guidance, which should be read by all students completing the module. Assessments are not just a way of auditing student knowledge. They are a process which provides additional learning and development through the preparation for and completion of the assessment. |
| * **Understand:** Students will gain a deeper understanding of fundamental networking concepts such as network topologies, protocols, addressing, subnetting, routing, and switching. They will learn how to apply these concepts to design a network that meets the specific requirements of a complex organization like a super market. Students will gain a deeper understanding of fundamental networking concepts such as network topologies, protocols, addressing, subnetting, routing, and switching. They will learn how to apply these concepts to design a network that meets the specific requirements of a complex organization like a super market. * **Design & Develop:** Students will gain proficiency in IP addressing and subnetting techniques, including the allocation of IP addresses to different network segments and the design of subnet masks to optimize address space usage. They will learn how to subnet networks to accommodate the various departments and devices within the super market. design of a network for ZoomTech Corporation , students will learn about network architecture principles, including network segmentation, redundancy, scalability, and fault tolerance. They will understand how to design a network that meets the performance, reliability, and security requirements of a complex organization. * **Evaluate:** Evaluate Network security principles and practices, including access control, encryption, authentication, and intrusion detection. They will learn how to identify and mitigate common network security threats and vulnerabilities, as well as troubleshoot network issues effectively. |

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| Marking/Assessment Criteria |
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# Further Information

*Staff note – Please check that these are aligned with your programme’s expectations.*

## Who can answer questions about my assessment?

Questions about the assessment should be directed to the staff member who has set the task/assessment brief. This will usually be the Module Leader. They will be happy to answer any queries you have.

Staff members can often provide feedback on an assignment plan but cannot review any drafts of your work prior to submission. The only exception to this rule is for Dissertation Supervisors to provide feedback on a draft of your dissertation.

## Referencing and independent learning

Please ensure you reference a range of credible sources, with due attention to the academic literature in the area. The time spent on research and reading from good quality sources will be reflected in the quality of your submitted work.

Remember that what you get out of university depends on what you put in. Your teaching sessions typically represent between 10% and 30% of the time you are expected to study for your degree. A 20-credit module represents 200 hours of study time. The rest of your time should be taken up by self-directed study.

Unless stated otherwise you must use the **HARVARD** referencing system. Further guidance on referencing can be found in the Study Smart area on Moodle and at [www.citethemrightonline.com](http://www.citethemrightonline.com) (use your university login details to access the site). Correct referencing is an easy way to improve your marks and essential in achieving higher grades on most assessments.

## Technical submission problems

It is strongly advised that you submit your work at least 24 hours before the deadline to allow time to resolve any last minute problems you might have. If you are having issues with IT or Turnitin you should contact the IT Helpdesk on (+44) 2920 417000. You may require evidence of the Helpdesk call if you are trying to demonstrate that a fault with Moodle or Turnitin was the cause of a late submission.

## Extensions and mitigating circumstances

Short extensions on assessment deadlines can be requested in specific circumstances. If you are encountering particular hardship which has been affecting your studies, then you may be able to apply for mitigating circumstances. This can give the teachers on your programme more scope to adapt the assessment requirements to support your needs. Extensions and mitigating circumstances policies and procedures are regularly updated. You should refer to your degree programme or school Moodle pages for information on extensions and mitigating circumstances.

## Unfair academic practice

Cardiff Met takes issues of unfair practice **extremely seriously.** The University has procedures and penalties for dealing with unfair academic practice. These are explained in full in the University's Unfair Practice regulations and procedures under [Volume 1, Section 8](https://www.cardiffmet.ac.uk/registry/academichandbook/Pages/Ah1_08.aspx) of the Academic Handbook. The Module Leader reserves the right to interview students regarding any aspect of their work submitted for assessment.

Types of Unfair Practice, include:

**Plagiarism,** which can be defined as using without acknowledgement another person’s words or ideas and submitting them for assessment as though it were one’s own work, for instance by copying, translating from one language to another or unacknowledged paraphrasing. Further examples include:

* Use of any quotation(s) from the published or unpublished work of other persons, whether published in textbooks, articles, the Web, or in any other format, where quotations have not been clearly identified as such by being placed in quotation marks and acknowledged.
* Use of another person’s words or ideas that have been slightly changed or paraphrased to make it look different from the original.
* Summarising another person’s ideas, judgments, diagrams, figures, or computer programmes without reference to that person in the text and the source in a bibliography/reference list.
* Use of assessment writing services, essay banks and/or any other similar agencies (NB. Students are commonly being blackmailed after using essay mills).
* Use of unacknowledged material downloaded from the Internet.
* Re-use of one’s own material except as authorised by your degree programme.

**Collusion**, which can be defined as when work that that has been undertaken with others is submitted and passed off as solely the work of one person. Modules will clearly identify where joint preparation and joint submission are permitted, in all other cases they are not.

**Fabrication of data**, making false claims to have carried out experiments, observations, interviews or other forms of data collection and analysis, or acting dishonestly in any other way.

## How is my work graded?

Assessment grading is subject to thorough quality control processes. You can view a summary of these processes on the [Assessment Explained Infographic](https://outlookuwicac.sharepoint.com/sites/QED/Shared%20Documents/Forms/Front%20Page.aspx?id=%2Fsites%2FQED%2FShared%20Documents%2Fstudent%20guide%20%2D%20Is%20my%20mark%20fair%2Epdf&parent=%2Fsites%2FQED%2FShared%20Documents&p=true&originalPath=aHR0cHM6Ly9vdXRsb29rdXdpY2FjLnNoYXJlcG9pbnQuY29tLzpiOi9zL1FFRC9FYzNrWVFRZUVIZEtyQ2JvX3RKbnIya0JvbUlpaUxJTm1QZWJVZ3ZUVWxqcTlRP3J0aW1lPXFLb08zblB3MkVn).

Grading of work at each level of Cardiff Met degree courses is benchmarked against a set of general requirements set out in [Volume 1, Section 4.3](https://www.cardiffmet.ac.uk/registry/academichandbook/Documents/AH1_04_03.pdf) of our Academic Handbook. A simplified version of these Grade Band Descriptors (GBDs) with short videos explaining some of the academic terminology used can be accessed via the [Facilitation of Learning](https://outlookuwicac.sharepoint.com/sites/QED/SitePages/Facilitation-of-Learning.aspx) resource page.

We would strongly recommend looking at the [Study Smart](https://learn.cardiffmet.ac.uk/course/view.php?id=1416) area of Moodle to find out more about assessments and key academic skills which can have a significant impact on your grades. Always check your work thoroughly before submission.

