**Higher Nationals**

Internal verification of assessment decisions – BTEC (RQF)

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| **INTERNAL VERIFICATION – ASSESSMENT DECISIONS** | | | | | | |
| **Programme title** | BTEC Higher National Diploma in Computing | | | | | |
| **Assessor** |  | | **Internal Verifier** |  | | |
| **Unit(s)** | **Unit 02: Networking** | | | | | |
| **Assignment title** | LAN Design & Implementation for SYNTAX SOLUTIONS | | | | | |
| **Student’s name** |  | | | | | |
| **List which assessment criteria the Assessor has awarded.** | **Pass** | | **Merit** | | **Distinction** | |
|  | |  | |  | |
| **INTERNAL VERIFIER CHECKLIST** | | | | | | |
| **Do the assessment criteria awarded match those shown in the assignment brief?** | | Y/N |  | | | |
| **Is the Pass/Merit/Distinction grade awarded justified by the assessor’s comments on the student work?** | | Y/N |  | | | |
| **Has the work been assessed accurately?** | | Y/N |  | | | |
| **Is the feedback to the student:**  Give details:   * Constructive? * Linked to relevant assessment criteria? * Identifying opportunities for improved performance? * Agreeing actions? | | Y/N  Y/N  Y/N  Y/N |  | | | |
| **Does the assessment decision need amending?** | | Y/N |  | | | |
| **Assessor signature** | |  | | **Date** | |  |
| **Internal Verifier signature** | |  | | **Date** | |  |
| **Programme Leader signature** (if required) | |  | | **Date** | |  |

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| **Confirm action completed** | | | |
| **Remedial action taken**  Give details: |  | | |
| **Assessor signature** |  | **Date** |  |
| **Internal Verifier signature** |  | **Date** |  |
| **Programme Leader signature** (if required) |  | **Date** |  |

Higher Nationals - Summative Assignment Feedback Form

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| --- | --- | --- | --- |
| **Student Name/ID** |  | | |
| **Unit Title** | **Unit 02: Networking** | | |
| **Assignment Number** | **1** | **Assessor** |  |
| **Submission Date** |  | **Date Received 1st submission** |  |
| **Re-submission Date** |  | **Date Received 2nd submission** |  |

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| **Assessor Feedback:**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **LO1 Examine networking principles and their protocols.** | | | | | | | **Pass, Merit & Distinction Descripts** | **P1** | **P2** | M1 |  |  |  | | **LO2 Explain networking devices and operations.** | | | | | | | **Pass, Merit & Distinction Descripts** | **P3** | **P4** | **M2** | **D1** |  |  | | **LO3 Design efficient networked systems.** | | | | | | | **Pass, Merit & Distinction Descripts** | **P5** | **P6** | **M3** | **D2** |  |  | | **LO4 Implement and diagnose networked systems.** | | | | | | | **Pass, Merit & Distinction Descripts** | **P7** | **P8** | **M4** | **D3** |  |  | |  | |

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| **Grade:** | **Assessor Signature:** | **Date:** |
| **Resubmission Feedback:** | | |
| **Grade:** | **Assessor Signature:** | **Date:** |
| **Internal Verifier’s Comments:** | | |
| **Signature & Date:** | | |

\* Please note that grade decisions are provisional. They are only confirmed once internal and external moderation has taken place and grades decisions have been agreed at the assessment board.

**Assignment Feedback**

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| --- | --- | --- | --- |
| **Formative Feedback: Assessor to Student** | | | |
| **Action Plan** | | | |
| **Summative feedback** | | | |
| **Feedback: Student to Assessor** | | | |
| **Assessor signature** |  | **Date** |  |
| **Student signature** |  | **Date** |  |

**Pearson Higher Nationals in**

**Computing**

Unit 02: Networking

Assignment 01

**General Guidelines**

1. A Cover page or title page – You should always attach a title page to your assignment. Use previous page as your cover sheet and make sure all the details are accurately filled.
2. Attach this brief as the first section of your assignment.
3. All the assignments should be prepared using a word processing software.
4. All the assignments should be printed on A4 sized papers. Use single side printing.
5. Allow 1” for top, bottom , right margins and 1.25” for the left margin of each page.

**Word Processing Rules**

1. The font size should be **12** point, and should be in the style of **Time New Roman**.
2. **Use 1.5 line spacing**. Left justify all paragraphs.
3. Ensure that all the headings are consistent in terms of the font size and font style.
4. Use **footer function in the word processor to insert Your Name, Subject, Assignment No, and Page Number on each pag**e. This is useful if individual sheets become detached for any reason.
5. Use word processing application spell check and grammar check function to help editing your assignment.

**Important Points:**

1. It is strictly prohibited to use textboxes to add texts in the assignments, except for the compulsory information. eg: Figures, tables of comparison etc. Adding text boxes in the body except for the before mentioned compulsory information will result in rejection of your work.
2. Avoid using page borders in your assignment body.
3. Carefully check the hand in date and the instructions given in the assignment. Late submissions will not be accepted.
4. Ensure that you give yourself enough time to complete the assignment by the due date.
5. Excuses of any nature will not be accepted for failure to hand in the work on time.
6. You must take responsibility for managing your own time effectively.
7. If you are unable to hand in your assignment on time and have valid reasons such as illness, you may apply (in writing) for an extension.
8. Failure to achieve at least PASS criteria will result in a REFERRAL grade .
9. Non-submission of work without valid reasons will lead to an automatic RE FERRAL. You will then be asked to complete an alternative assignment.
10. If you use other people’s work or ideas in your assignment, reference them properly using HARVARD referencing system to avoid plagiarism. You have to provide both in-text citation and a reference list.
11. If you are proven to be guilty of plagiarism or any academic misconduct, your grade could be reduced to A REFERRAL or at worst you could be expelled from the course

**Student Declaration**

I hereby, declare that I know what plagiarism entails, namely to use another’s work and to present it as my own without attributing the sources in the correct form. I further understand what it means to copy another’s work.

1. I know that plagiarism is a punishable offence because it constitutes theft.
2. I understand the plagiarism and copying policy of Pearson UK.
3. I know what the consequences will be if I plagiarise or copy another’s work in any of the assignments for this program.
4. I declare therefore that all work presented by me for every aspect of my program, will be my own, and where I have made use of another’s work, I will attribute the source in the correct way.
5. I acknowledge that the attachment of this document signed or not, constitutes a binding agreement between myself and Pearson, UK.
6. I understand that my assignment will not be considered as submitted if this document is not attached to the assignment.

**Student’s Signature: Date:**

**(*Provide E-mail ID*) (*Provide Submission Date*)**

**Higher National Diploma in Computing**

Assignment Brief

|  |  |
| --- | --- |
| Student Name /ID Number |  |
| **Unit Number and Title** | **Unit 2: Networking** |
| Academic Year | 2021/22 |
| Unit Tutor |  |
| **Assignment Title** | **LAN Design & Implementation for SYNTAX SOLUTIONS** |
| Issue Date |  |
| Submission Date |  |
| IV Name & Date |  |

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| **Submission format** | |
| The submission should be in the form of an individual report written in a concise, formal business style using single spacing and font size 12. You are required to make use of headings, paragraphs and subsections as appropriate, and all work must be supported with research and referenced using Harvard referencing system. Please also provide an end list of references using the Harvard referencing system.  **The recommended word count is 3,000–3,500 words for the report excluding annexures, although you will not be penalised for exceeding the total word limit.** | |
|  | **Unit Learning Outcomes:** |
|  | **LO1** Examine networking principles and their protocols.  **LO2** Explain networking devices and operations.  **LO3** Design efficient networked systems.  **LO4** Implement and diagnose networked systems. |
|  | **Assignment Brief and Guidance:** |
| **Scenario**  **SYNTAX SOLUTIONS** is a privately owned, well-known Software company located in Colombo. The Management of **SYNTAX SOLUTIONS** has purchased a 3-story building in the heart of **Matara**. They are planning to make it one of the state-of-the-art companies in Matara with the latest facilities.  It is expected to have nearly **150 employees** in Matara branch.   |  |  | | --- | --- | | **Department** | **Number of Users** | | Customer Care | 10 | | Sales and Marketing | 20 | | Finance | 25 | | Legal | 5 | | HR | 10 | | Developers | 55 | | Network Team | 5 | | Server Room | Servers +ISP connections |   **Following requirements are given by the Management.**   * All the departments **must be separated** with **unique subnet** and should not communicate with each other **unless there is a special requirement**. * **192.168.10.0/24** is given and should be used for all the departments except the server room. IPs should assign **using DHCP**. * **ERP and CRM Systems** need to be implemented in Matara branch in local servers. * **Number of servers required for the Server room** need to be decided by the Network designer and should be assigned with **10.254.1.0/24** subnet. (Uses **static IPs**) * **High level of redundancy** is expected in network design to eliminate single point of failures and traffic bottle necks. * **Sales and Marketing** Team need to access Network resources **using WIFI** connectivity. * **Proper methods** for **networking monitoring** and **troubleshooting** need to be established. * All possible **network security** mechanisms should be implemented.   Assume you have been appointed as the new network consultant of **SYNTAX SOLUTIONS**. Prepare a network architectural design and implement it with your suggestions and recommendations to meet the company requirements.  ***(Note: Clearly state your assumptions. You are allowed to design the network according to your assumptions, but main requirements should not be violated)***  **Activity 01**   * + Discuss the benefits and constraints of different network system types that can be implemented in the Matara branch and the main IEEE Ethernet standards that can be used in above LAN and WLAN design.   + Discuss the importance and impact of network topologies and network protocol suites while comparing the main network topologies and network protocol suites that are used in network design using examples. Recommend suitable network topologies and network protocol suites for above scenario and justify your answer with valid points.   **Activity 02**   * Discuss the operating principles of network devices (Ex: Router, Switch, Etc.) and server types that can be used for above scenario while exploring different servers that are available in today’s market with their specifications. Recommend server/servers for the above scenario and justify your selection with valid points. * Discuss the inter-dependence of workstation hardware with networking software and provide examples for networking software that can be used in above network design.   **Activity 03**   * Prepare a written network design plan to meet the above mentioned user requirements including a blueprint drawn using a modeling tool. (Ex: Microsoft Visio, EdrawMax).   Support your answer by providing the VLAN and IP subnetting scheme for the above scenario and the list of devices, network components and software used to design the network for above scenario and while justifying your selections.   * Test and evaluate the proposed design to meet the requirements and analyse user feedback by using a User feedback form. * Install and configure Network services, devices and applications (Ex: VLAN,DHCP, DNS,Proxy, Web, Etc.) according to the proposed design to accomplish the user requirements and design a detailed Maintenance schedule for above Network.     \***Note: - Screen shots of Configuration scripts should be presented.**  **Activity 04**   * Implement a networked system based on your prepared design with valid evidences and recommend potential future enhancements for the networked system with valid justifications to your recommendations. Use critical reflection to critically evaluate the design, plan, configuration, and testing of your network while justifying with valid conclusions. * Develop test cases and conduct verification (Ex: Ping, extended ping, trace route, telnet, SSH, etc.) to test the above Network and analyse the test results against the expected results. | |
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**Grading Rubric**

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| --- | --- | --- |
| **Grading Criteria** | **Achieved** | **Feedback** |
| **LO1 : Examine networking principles and their protocols.** | | |
| **P1**  Discuss the benefits and constraints of different network types and standards. |  |  |
| **P2**  Explain the impact of network topology, communication and bandwidth requirements. |  |  |
| **M1**  Compare common networking principles and how protocols enable the effectiveness of networked systems. |  |  |
| **LO2 : Explain networking devices and operations** | | |
| **P3**  Discuss the operating principles of networking devices and server types. |  |  |
| **P4**  Discuss the inter-dependence of workstation hardware with relevant networking software. |  |  |
| **M2**  Explore a range of server types and justify the selection of a server, considering a given scenario regarding cost and performance optimization. |  |  |
| **LO 1 & LO2** | | |
| **D1** Critically evaluate the topology protocol selected for a given scenario to demonstrate the efficient utilisation of a networking system. |  |  |
| **LO3 : Design efficient networked systems** | | |
| **P5**  Design a networked system to meet a given specification. |  |  |
| **P6**  Test and evaluate the design to meet the requirements and analyze user feedback. |  |  |
| **M3**  Install and configure network services and applications on your choice. |  |  |
| **D2**  Design a maintenance schedule to support the networked system. |  |  |
| **LO4 : Implement and diagnose networked systems** | | |
| **P7**  Implement a networked system based on a prepared design. |  |  |
| **P8**  Document and analyze test results against expected results. |  |  |
| **M4**  Recommend potential enhancements for the networked systems. |  |  |
| **D3**  Use critical reflection to evaluate own work and justify valid conclusions. |  |  |