**Networking (Advocate: Mike Watkins)**

**P1 Discuss the benefits and constraints of different network types and standards.**

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| Please use this section to provide all appropriate, valid and checked http Links that point to your evidence; use multiple lines to separate multiple links |
| Create a repo - called Networking and produce a well-structure, formatted readme with section titles; this title should be:   * Research and review the different types of networks: Peer-based, client-server, cloud, cluster, centralised, virtualised; relate each type to aspects like purpose, benefits, resource implications, communications, working practice, commercial opportunity, information sharing, collaboration * Discuss in the form of a benefit/constraint breakdown table aspects like: Conceptual models (OSI model & TCP/IP model) * Explain the following working standards and protocols * IEEE 802.3, .7, .8, .11 for physical cabling and data transmission * Routed protocols (IPv4, IPv6) address issues of IPv4 & IPv6, Global unicast, Multicast, Link local, Unique local, EUI 64 & Auto configuration, * Services and network applications: FTP, HTTP, SMTP, POP3, SSL.   In addition to your own research it may be worth investigating links such as:   * <http://what-when-how.com/data-communications-and-networking/network-standards-data-communications-and-networking/> * <http://etutorials.org/Networking/Lan+switching+first-step/Chapter+2.+Network+Models+and+Standards/Network+Standards/> * \*You could also access HN Global for additional resources support and reading for this unit.   Once you have created your repo - use this section in this document to provide a short (between 3 to 8 well considered, fully proofread and reflected sentences) explanation that justifies why the evidence/links you have provided is suitable as evidence of this requirement |

**P2 Explain the impact of network topology, communication and bandwidth requirements.**

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| Please use this section to provide all appropriate, valid and checked http Links that point to your evidence; use multiple lines to separate multiple links |
| Add a title called something like “The impact of networking topology, communication and bandwidth” - In this section   * Research, explain the difference and review the following topologies: logical (e.g. Ethernet, Token Ring) and physical (star, ring, bus, mesh, tree and ring). * Discuss what communication is and how it relates to the suitability of devices, suited to users, supportive of lifestyle desires, supportive of commercial requirements, security requirements, quality of service needs and the effect that bandwidth has   Please provide a short (between 3 to 8 well considered, fully proofread and reflected sentences) explanation that justifies why the evidence/links you have provided is suitable as evidence of this requirement |

**P3 Discuss the operating principles of networking devices and server types.**

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| Please use this section to provide all appropriate, valid and checked http Links that point to your evidence; use multiple lines to separate multiple links |
| This section “Operating Principles” create a glossary which you identify and explain the following terms:   * Networking devices: hubs, routers; switches; multilayer switch, firewall, HIDS, repeaters; bridges; wireless devices; access point (wireless/wired), content filter, Load balancer, Modem, Packet shaper, VPN concentrator. * Server types: Web, file, database, combination (e.g MS Small Business Servers), virtualisation and terminal services server.   Please provide a short (between 3 to 8 well considered, fully proofread and reflected sentences) explanation that justifies why the evidence/links you have provided is suitable as evidence of this requirement |

**P4 Discuss the interdependence of workstation hardware with relevant networking software.**

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| In this section “Workstation Hardware”, explain and discuss the “interdependence” of hardware with the relevant networking software  Include elements:   * Explain in fairly open terms - networking software (client software, server software, client operating system, server operating system, firewall and proxies) * Then explain the differences between network card, wireless, mobile and the different type of cabling (infrastructure, patch, networking, shielded and twisted pair) * Review the need for permissions (explain the difference between local permissions NTFS and network shared permissions ) * Local workstation architecture e.g. memory, processor, I/O devices - include a small section on the system bus and how this works (in simple terms CPI->Memory->IO->Data->Control)   Please provide a short (between 3 to 8 well considered, fully proofread and reflected sentences) explanation that justifies why the evidence/links you have provided is suitable as evidence of this requirement |

**P5 Design a networked system to meet a given specification.**

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**P6 Test and evaluate the design to meet the requirements and analyse user feedback.**

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**P7 Implement a networked system based on a prepared design.**

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**P8 Document and analyse test results against expected results.**

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**M1 Compare common networking principles and how protocols enable the effectiveness of networked systems.**

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**M2 Explore a range of server types and justify the selection of a server, considering a given scenario regarding cost and performance optimisation.**

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**M3 Install and configure network services and applications on your choice.**

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**M4 Recommend potential enhancements for the networked systems.**

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**D1 Considering a given scenario, identify the topology protocol selected for the efficient utilisation of a networking system.**

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**D2 Design a maintenance schedule to support the networked system.**

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**D3 Use critical reflection to evaluate own work and justify valid conclusions.**

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