

LEVEL 5 ASSESSMENT SPECIFICATION

Student name:		Student ID number:	
Programme:	BSc Applied Computing		
Module:	Network Operating Systems and Services		
Module code:	ACCA5023	Contribution to Overall Module Assessment (%):	50%
Lecturer:	MD Sadeque Imam Shaikh	Internal Verifier:	Munyaradzi Murira
Assignment Title:	Build, deploy, configure, and manage a Type 2 Hypervisor platform based Virtualised network	Word count (or equivalent):	2500 words
Submission deadline:	30th April by 2pm	Return date of provisional marks & written feedback:	29th May 2024
Submission method:	<p>All written assessments, where practical and possible, must be submitted via Turnitin unless otherwise instructed by the Lecturer. (Please DO NOT put this assessment specification into Turnitin or it will match many similarities with other students' submissions.)</p> <p>Alternative submission method (if applicable):</p> <p>Late submission of the assessment will result in a late penalty mark. Penalties for late submission: Up to one week late, maximum mark of 40%. Over one week late, 0%. Only the Extenuating Circumstances Panel may approve a change to submission dates.</p>		
Academic honesty / referencing:	<p>Academic honesty is required. In the main body of your submission, you must give credit to authors on whose research and ideas your work is based. Append to your submission a reference list that indicates the books, articles, etc. that you have used, cited or quoted in order to complete this assessment.</p>		

Module Learning Outcomes (From module syllabus)
Apply a systematic understanding of network operating system environments to deploy, manage and maintain critical network services and resources. Analyse a given network to produce suitable security audit/disaster recovery strategy.

TASK DESCRIPTION

INTRODUCTION

This is a continuation Task. Continue with the same topology from Coursework 1. Before starting this assessment, you need to complete Coursework 1. This assessment comprises of both research and practical implementation.

- Practical work: Complete the task and document it with necessary screenshots.
Note: All screenshots must have timestamp on it. Without Timestamp, the screenshots will not be considered for marks.
- Research work: Use appropriate referencing style to in-text cite your research work. You need to do a short presentation during the submission of this coursework. Presentation details will be shared by your Lecturer.

Part 1

You are required to manage and maintain network resources applying appropriate network policies, routing and packet filtering within core TCP/IP services, File sharing, Issuing Certificates, drafting security practices, critical failover/redundancy practices etc.

Complete the following tasks:

1. Install and configure Routing.
2. Configure critical services as per the requirement.

Critical Details

Login: -: Username: Administrator, Password: Pa55w0rD!

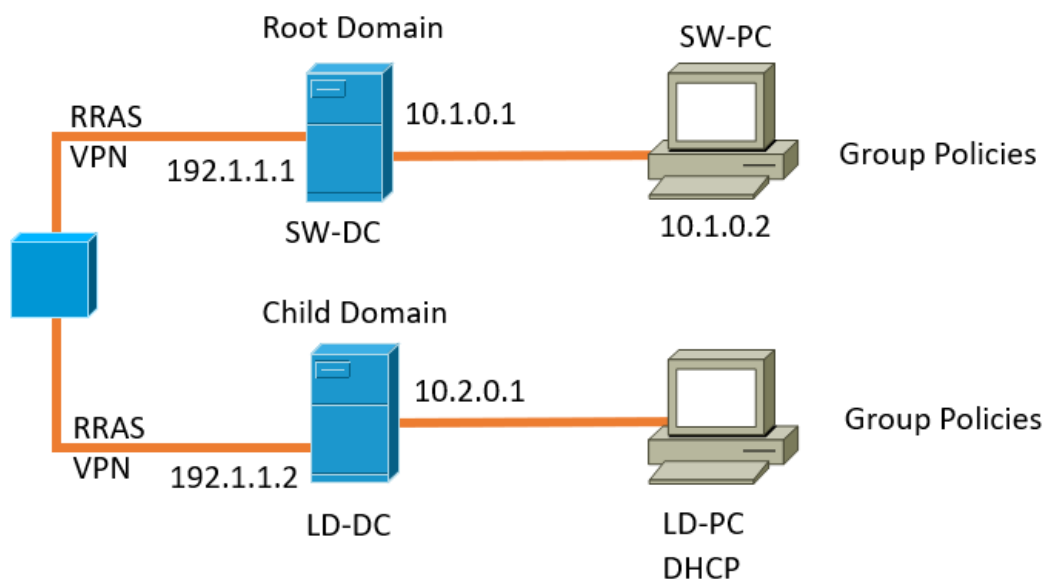
System Configuration: -: Language: English US, Time Format: London UK

Scenario

You have been hired as an IT-professional by a Multinational Corporation called NOSS. NOSS operates currently at two locations: Swansea and London. You are asked to bring up a Forest Root Domain with two Child Domains and services associated with them.

Instruction: Read the coursework task fully before starting to work on it. There are various requirements that need to be planned before starting the installation/ configurations.

Topology:



In your virtualized network, complete the following task.

NOTE: Don't answer the research questions "what is what". Try to review recent academic/ industry credible literatures and reflect on your understanding on the concepts covering the areas requested.

1. Research on Routing: Do detailed research on the fundamental concepts of routing protocols, including how they work, their role, what is their purpose etc. Focus on the key differences between static and dynamic routing protocols.
2. Case Study: Refer to real-world examples and case studies on how routing protocols are deployed in a real time network. Analyse different routing protocols used in network scenarios and reflect on the benefits and challenges on each routing protocols based on those scenarios.
3. Presentation: Prepare a presentation (use any presentation tools) to summarize the key concepts, features and best practices associated with VPNs, DHCP, Active Directory Domain Services and Certificate Authorities. The presentation must not exceed 10 slides. Upload the presentation in a separate link given to you via Moodle.
4. In Swansea Network,
 - 4.1. Install Routing and Remote access Service and modify firewall rules to allow ICMP Traffic.
 - 4.2. Configure Site-to-Site VPN to London Network. Set the connection type to "persistent connection".

- 4.3. Create a forest named acca5023.noss
- 4.4. Create all appropriate A records for all servers on 10.1.0.0/24 and 10.2.0.1/24.
- 4.5. Create a reverse lookup zone creating PTR records for all servers.
5. In London Network,
 - 5.1. Install Routing and Remote access Service and modify firewall rules to allow ICMP Traffic.
 - 5.2. Configure Site-to-Site VPN to Swansea Network. Set the connection type to “persistent connection”.
 - 5.3. Create a child domain named ld.acca5023.noss in acca5023.noss tree
 - 5.4. Create user accounts for ld.acca5023.noss domain with all the parameters defined in the users_list.xlsx document. This document will be shared by your lecturer. You must use first letter from first name with a dot and last name as SAM Account Name. Eg: First Name: Nitheesh Last Name: Kaliyamurthy. → n.kaliyamurthy.
 - 5.5. Mount second disk drive to C:\LondonFiles.
 - 5.6. Configure DHCP Services. The range is 10.2.0.10 – 10.2.0.20. Determine other DHCP options as per the infrastructure.
6. Test the network for Connectivity. Note that at this stage, the Swansea and London networks are connected and fully operational. If not, Troubleshoot.

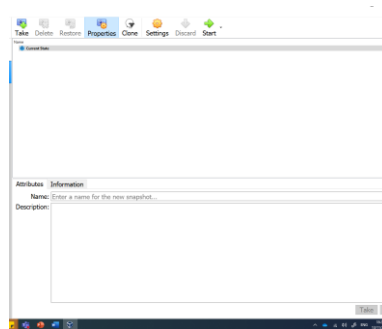
Part 2

(This part needs to be completed on your own. This part is designed to reflect on your knowledge, understanding and cognitive skills)

7. Sharing Disk Drive: To the earlier created C:\LondonFiles, set access permissions to allow users in the users_list.xlsx has full control permissions and other network users have only read access. Share the drive to both London and Swansea network.
8. Configure IIS Server
 - 8.1. Create https://web.ld.acca5023.noss website and enable windows internal authentication. All the London users can be authenticated.
 - 8.2. All authenticated users should be presented a text “Welcome to London Website”.
9. Remote Desktop Services: Configure remote access for LD-DC from any other machines in the network. Make sure that the Remote Desktop Services login page should be accessed via https://rds.ld.acca5023.noss and necessary certificates are signed.
10. Write a reflective report on completing the research and practical aspects of coursework 1 and coursework 2 until question 6. Share your thoughts on how the knowledge and understanding gained from the tasks until question 6 was resourceful to complete tasks 7,8 and 9.

Note: All the research aspects you undertake, must *follow the school's report writing and academic referencing style* that the student typically encounters in other assignments on your course. The research must cover necessary in-text cited references of academic credible literatures and evidence on knowledge and understanding of the work in your own words. You should use detailed explanations, overviews, illustrations, and citations. It is vital that you follow this guidance to obtain the best possible marks for this assessment. The research aspects in the worksheet are used to further assess your ability to systemically understand the various technologies that you are installing/deploying in the practical work.

All screenshots must be timestamped and clear with proper descriptions. The practical part of each unit should be captured using 'screenshots', which can be obtained via the Microsoft Snipping Tool. **Note that the date and time of the Machine at the Right Corner should also be present in the screen shot as shown below.**



The screen captures are obtained as you progress through the practical work, showing evidence of the completion of these tasks. These should not be presented as a 'how to' guide or a user manual, but instead with brief narration (**written in the third person sense**) of the task undertaken with any appropriate contextual comments.

GUIDANCE FOR STUDENTS IN THE COMPLETION OF TASKS

NOTE: The guidance offered below is linked to the five generic assessment criteria overleaf.

1. Engagement with Literature Skills (20%)

Your work must be informed and supported by scholarly material that is *relevant* to and *focused* on the task(s) set. You should provide evidence that you have accessed an appropriate *range* of sources, which may be academic, governmental and industrial; these sources may include academic journal articles, textbooks, current news articles, organisational documents, and websites. You should consider the *credibility* of your sources; academic journals are normally highly credible sources while websites require careful consideration/selection and should be used sparingly. Any sources you use should be current and up-to-date, mostly published within the last five years or so, though seminal/important works in the field may be older. You must provide *evidence* of your research/own reading throughout your work, using a suitable referencing system, including in-text citations in the main body of your work and a reference list at the end of your work.

Guidance specific to this assessment: *The engagement of the literatures and citing them appropriately that justifies your observations upon the tasks of all worksheets will be assessed here. Your work must include articles published by peer reviewed journals, conference proceedings, books, and related website (e.g. IEEE, ACM, Science direct). Information from website such as how, wiki, forums, etc. will not be accepted.*

Marks will be awarded for:

- Diversity of sources and materials used
- Key concepts discussed
- Appropriate summaries of articles and level of critical appraisal of literature
- Application of appropriate referencing conventions

2. Knowledge and Understanding Skills (15%)

At level 5, you should be able to demonstrate: sound knowledge and critical understanding of the well-established concepts and principles of the subject area and the way in which those principles have developed; knowledge of the main methods of enquiry in the discipline. *Knowledge* relates to the facts, information and skills you have acquired through your learning. You demonstrate your *understanding* by interpreting the meaning of the facts and information (knowledge). This means that you need to select and include in your work the concepts, techniques, models, theories, etc. appropriate to the task(s) set. You should be able to explain the theories, concepts, etc. meaningfully to show your understanding. Your mark/grade will also depend upon the *extent* to which you demonstrate your knowledge and understanding.

Guidance specific to this assessment: *Your observations must demonstrate systemic understanding of various technologies that you are installing/deploying in the practical and explaining the concepts in observational work.*

This will be assessed by

- Depth of the Observations
- Strength of the statements
- Quality of the report
- Presentation

3. Cognitive and Intellectual Skills (15%)

You should be able to critically analyse information, and propose solutions to problems arising from that analysis, including the critical evaluation of the appropriateness of different approaches to solving problems. Your work must contain evidence of logical, analytical thinking, evaluation and synthesis. For example, to examine and break information down into parts, make inferences, compile, compare and contrast information. This means not just describing what! But also justifying: Why? How? When? Who? Where? At what cost? At

all times, you must provide justification/evidence for your arguments and judgements. Evidence that you have reflected upon the ideas of others within the subject area is crucial to you providing a reasoned and informed debate within your work. Furthermore, you should provide evidence that you are able to make sound judgements and convincing arguments using data and concepts, with an understanding of the limits of knowledge, and how this influences analyses and interpretations. Sound, valid conclusions are necessary and must be derived from the content of your work. Where relevant, alternative solutions and recommendations may be proposed.

Guidance specific to this assessment: Your observations must demonstrate critical analysis and evaluation of different technologies that could be used to solve a problem or enhance any existing operations. Your observations must also justify the appropriate reason for deploying/ configuring the relevant technologies in the practical work.

This will be assessed by

- The critical analysis and justification stated in the observation for using the technology.

4. Practical Skills (40%)

At level 5, you should be able to use/deploy a range of established techniques within the discipline, and apply underlying concepts and principles outside the context in which they were first studied, including, where appropriate, the application of those principles in an employment context. You should be able to demonstrate how the subject-related concepts and ideas relate to real world situations and/or a particular context. How do they work in practice? You will deploy models, methods, techniques, and/or theories, in that context, to assess current situations, perhaps to formulate plans or solutions to solve problems, or to create artefacts, some of which may be creative. This is likely to involve, for instance, the use of real world artefacts, examples and cases, the application of a model within an organisation and/or benchmarking one theory or organisation against others based on stated criteria. You should show awareness of the limitations of concepts and theories when applied in particular contexts.

Guidance specific to this assessment: Your practical deployment/ installation showing appropriate evidence of the completion of these tasks.

This will be assessed by

- Based on the practical tasks.
- Submit necessary screenshots and a brief narration (written in the third person sense) of the task undertaken with any appropriate contextual comments.

5. Transferable Skills for Life and Professional Practice (10%)

Your work must provide evidence of the qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and decision-making. This includes demonstrating: professional development to advance existing skills and acquire new competences that will enable you to assume significant responsibility within organisations; that you can initiate and complete tasks and procedures, whether individually and/or collaboratively; that you can use appropriate media to effectively communicate information, arguments and analysis in a variety of forms to specialist and non-specialist audiences; fluency of expression; clarity and effectiveness in presentation and organisation. Work should be coherent and well-structured in presentation and organisation.

Guidance specific to this assessment: You must submit a report which should be approximately 2,500 words in length. The report should be presented in an academic way. The report must be submitted via Turnitin uploaded to the Moodle link that will be created.

This will be assessed based on the written and presentational quality of your report:

- Flow
- Professionalism
- Comprehension (grammar and spelling)
- Completeness and presentation of report
- Presentation

STUDENT FEEDBACK FORM

This section details the *extent* to which the assessment criteria are demonstrated by you, which in turn determines your mark. The marks available for each category of skill are shown. Lecturers will use the space provided to comment on the achievement of the task(s), including those areas in which you have performed well and areas that would benefit from development/improvement.

Generic Assessment Criteria	Marks available	Marks awarded
1. Engagement with Literature Skills	20	
2. Knowledge and Understanding Skills	15	
3. Cognitive and Intellectual Skills	15	
4. Practical Application Skills	40	
5. Transferable Skills for Life and Professional Practice	10	

Assessment Mark (Assessment marks are subject to ratification at the Exam Board. These comments and marks are to give feedback on module work and are for guidance only until they are confirmed.)	Late Submission Penalties (tick if appropriate)		%
	Up to 1 week late (40% Max)		
	Over 1 week late (0%)		

GENERIC ASSESSMENT CRITERIA

Level 5

In accordance with the Framework for Higher Education Qualifications, at the end of Level 5 students will be expected to have developed sound knowledge and critical understanding of the well-established concepts and principles in their field of study, and of the way in which those principles have developed. They will have learned to apply those concepts and principles more widely outside the context in which they were first studied, including, where appropriate, the application of those principles in an employment context. They will have knowledge of the main methods of enquiry in the subject area, and ability to evaluate critically different approaches to problem solving. They will possess an understanding of the limits of their knowledge, and how this influences their analyses and interpretations. They will be able to use a range of established techniques to initiate and undertake critical analysis of information, and to propose solutions to problems arising from that analysis. They will be able to effectively communicate information, arguments and analysis in a variety of forms to specialist and non-specialist audiences, and deploy key techniques of the discipline effectively. They will be able to undertake further training, develop existing skills and acquire new competences that will enable them to assume significant responsibility within organisations. They will have the qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and decision-making.

Level 5	FAIL	MARGINAL FAIL	SATISFACTORY (3 rd / Pass)	GOOD (2.2 / Pass)	VERY GOOD (2.1 / Merit)	EXCELLENT (1 st / Distinction)	EXCEPTIONAL (1 st / Distinction)
Category	0-29%	30-39%	40-49%	50-59%	60-69%	70-84%	85-100%
Engagement with literature (including reading, referencing, academic conventions and academic honesty)	Little or no evidence of reading and/or reliance on inappropriate sources. Views and findings mostly unsupported and non-authoritative. Referencing conventions used incoherently or largely absent.	Poor engagement with essential reading. No evidence of wider reading. Reliance on inappropriate sources, and/or indiscriminate use of sources. Heavily reliant on information gained through class contact. Inconsistent and weak use of referencing.	Engagement with a limited range of mostly relevant and credible sources. Some omissions and minor errors. Referencing conventions evident though not always applied accurately or consistently.	Engagement with an appropriate range of literature, including sources retrieved independently. Some over-reliance on texts. Referencing may show minor inaccuracies or inconsistencies.	Engagement with a wide range of literature, including sources retrieved independently. Selection of relevant and credible sources. Very good use of referencing, with no/very few inaccuracies or inconsistencies.	Engagement with an extensive range of relevant and credible literature. Consistently accurate application of referencing.	Exceptional engagement with an extensive range of relevant and credible literature. High-level referencing skills consistently applied.
Knowledge and understanding (Sound knowledge and	Major gaps in knowledge with unsatisfactory, uncritical understanding of	Fragmentary knowledge, with only superficial critical understanding.	Limited but adequate knowledge and critical understanding of	Knowledge is reasonably detailed and accurate. A good critical	Knowledge is reasonably extensive. Exhibits very competent	Excellent, detailed knowledge and highly critical understanding of	Exceptionally detailed knowledge and outstanding critical

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critical understanding of the well-established concepts and principles in their field of study; knowledge of the main methods of enquiry in the discipline.)	the subject matter. Much irrelevant material. Substantial inaccuracies. Significantly flawed understanding of the main methods of enquiry in the discipline.	Some significant inaccuracies and/or irrelevant material. Incomplete or partially flawed understanding of the main methods of enquiry in the discipline.	the well-established concepts and principles within the subject area, with a few gaps in the selection of material. A narrow critical understanding of the main methods of enquiry.	understanding of the well-established concepts and principles and the main methods of enquiry, with minor gaps in the selection of material.	critical understanding of the well-established concepts and principles of the subject and the main methods of enquiry. Breadth and depth of knowledge.	the well-established concepts and principles of the subject and the main methods of enquiry.	understanding of the well-established concepts and principles of the subject and the main methods of enquiry. May go beyond established theories.
Cognitive and intellectual skills (Critical evaluation and analysis of concepts and principles; argument and judgement; the limits of their knowledge, and how this influences their analyses and interpretations.)	Wholly or almost wholly descriptive work. Little or no critical evaluation and analysis of concepts and principles. Failure to develop arguments, leading to illogical or invalid judgements. Unsubstantiated generalisations or opinion, made without use of any credible evidence.	Largely descriptive work, with superficial use of critical evaluation and analysis of concepts and principles. Weak development of arguments and judgements. Information accepted uncritically, uses generalised statements made with scant evidence and unsubstantiated opinions. Ideas sometimes illogical and contradictory.	Limited attempt at critical evaluation and analysis of concepts and principles, tending towards description. Some evidence to support arguments and judgements but these may be underdeveloped, with a little inconsistency / mis-interpretation or failure to fully recognise limits of knowledge.	Some critical evaluation and analysis of concepts and principles, though descriptive in parts. An emerging awareness the limits of their knowledge and ability to use evidence to support the argument though with some tendency to assert/state opinion rather than argue on the basis of reason and evidence. Mostly valid arguments and logical judgements.	Sound critical evaluation and analysis of concepts. Is selective in the range of evidence used and synthesises rather than describes. Ability to devise arguments that show awareness of different stances, and use evidence convincingly, to support appropriate and valid judgements.	Excellent critical evaluation and analysis of concepts and principles leading to logical, evidence-based, reasoned arguments and judgements. Explicit recognition of other stances and a strong awareness of the limits of their knowledge. A capacity for independent thought and ability to 'see beyond the question', suggesting some grasp of the broader field and wider concepts.	Outstanding critical evaluation and analysis of concepts and principles. Uses evidence exceptionally well to connect ideas, and support highly logical and persuasive, arguments and judgements. Evidence of independent thought and ability to 'see beyond the question', suggesting a clear grasp of the broader field and wider concepts. Perceptive recognition of

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							the limits of their knowledge, and how this influences their analyses and interpretations.
Practical skills (Apply underlying concepts and principles more widely outside the context in which they were first studied; use a range of established techniques; propose solutions to problems arising from analysis.)	Limited or no use of established methods, materials, tools and/or techniques. Little or no appreciation of the context of the application. Limited understanding of the application of theory to practice or making appropriate links between the two. Very weak problem-solving skills outside the context in which they were first studied.	Rudimentary application of established methods, materials, tools and/or techniques but without consideration and competence. Flawed appreciation of the context of the application. Weak understanding of the application of theory to practice, with only occasional evidence of making appropriate links between the two. Weak problem-solving skills outside the context in which they were first studied.	An adequate awareness and mostly appropriate application of established methods, materials, tools and/or techniques. Basic appreciation of the context of the application. Theoretical knowledge and understanding applied in practice, but not always making logical links between the two. Can identify problems and propose basic solutions outside the context in which they were first studied.	A good and appropriate application of established methods, materials, tools and/or techniques. Clear appreciation of the context of the application. Mainly consistent, accurate and logical application of theory to practice, making appropriate links between the two. Can identify problems and propose mostly appropriate solutions outside the context in which they were first studied.	A very good application of a range of established methods, materials, tools and/or techniques. Very good consideration of the context of the application, with perceptive insights. Consistent, accurate and logical application of theory to practice, making appropriate links between the two. Can identify problems and propose appropriate solutions outside the context in which they were first studied. Evidence of some creativity.	An advanced application of a range of established methods, materials, tools and/or techniques. The context of the application is well considered, and insightful. Consistent, accurate and logical application of theory to practice, making well-developed links between the two. Can identify problems and propose excellent, creative solutions outside the context in which they were first studied.	Exceptional levels of application and deployment skills using established methods, materials, tools and/or techniques. Consistent, accurate and logical application of theory to practice, making highly developed links between the two. Can identify routine and non-routine problems and propose quite sophisticated, creative solutions outside the context in which they were first studied.
Transferable skills for life	Communication medium is	Communication medium is poorly	Can communicate in	Can communicate	Can communicate	Can communicate	Can communicate

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and professional practice (Effectively communicate in a variety of forms to specialist and non-specialist audiences; the qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and decision-making.)	inappropriate or misapplied. Work is poorly structured, disorganised and/or confusingly expressed. Very weak use of language and/or very inappropriate style. Failure to work effectively as part of a group. Little or no evidence of the skills for employment requiring the exercise of personal responsibility and decision-making.	designed and/or not suitable for the audience. Work is poorly presented in a disjointed manner. It is loosely, and at times incoherently, structured, with information and ideas often poorly expressed. Weak use of language and/or inappropriate style. Flawed approach to group work, meeting only partial obligations to others. Limited evidence of the skills for employment requiring the exercise of personal responsibility and decision-making.	a suitable medium for the audience but with some room for improvement. Mostly ordered presentation and structure in which relevant ideas / concepts are reasonably expressed. Work may lack coherence in places. Can work as part of a group, meeting most obligations to others but perhaps with limited involvement in group activities. Demonstrates the basic skills for employment requiring the exercise of personal responsibility and decision-making, with some areas of minor weakness.	effectively in a suitable medium for the audience, but may have minor errors. Mostly coherent, organised work, in a suitable structure and is for the most part clearly expressed. Can work effectively independently and/or as part of a team, with clear contribution to group activities. Demonstrates the skills for employment requiring the exercise of personal responsibility and decision-making, with some areas of strength and some of minor weakness.	well, confidently and consistently in a suitable medium for the audience. Work is coherent, fluent, well-structured and organised. Can work very well autonomously and/or as part of a team, with very good contribution to group activities. Demonstrates very good skills for employment requiring the exercise of personal responsibility and decision-making, with just occasional minor weakness.	professionally confidently and consistently in a suitable medium for the audience. Work is coherent, very fluent and is presented proficiently. Can work autonomously with initiative. Where relevant can work professionally within a team, showing leadership skills as appropriate, and meeting obligations. Demonstrates excellent skills for employment requiring the exercise of personal responsibility and decision-making and an appetite for further development.	with an exceptionally high level of professionalism, highly suitable for the audience. Work is exceptionally coherent, very fluent and is presented professionally. Can work exceptionally well within a team, showing leadership skills. Demonstrates exceptional skills for employment requiring the exercise of personal responsibility and decision-making and an appetite for further development.

THIS DOCUMENT IS ALSO AVAILABLE IN WELSH