



INTERNAL ASSESSMENT APPROVAL FORM (INCLUDING COLLABORATIVE PROVISION)

This form is used to ensure that assessment specifications have been through an internal review process prior to external examination/approval and release to students. It should be completed for each assessment for a particular module. The assessment tasks, criteria and marking scheme should accompany this form.

PARTNER (and taught location if relevant):	Coleg Sir Gar				
EXTERNAL EXAMINER NAME:	Dr Alison Griffiths				
ASSESSMENT AUTHOR :	Robert Jenkins				
MODULE TITLE:	NETWORKING SYSTEMS FOR ENGINEERS				
MODULE CODE:	SGEE5008		MODULE LEVEL:	5	
COMPONENT NO. (e.g. 1 of 2):	1 of 1		COMPONENT WEIGHTING (e.g. 50% of the module):	100%	
ASSESSMENT PERIOD	☒ Semester 1	☐ Semester 1 <i>Re-sit</i>	☒ Semester 2	☐ Semester 2 <i>Re-sit</i>	<i>Other, please state</i>
TYPE OF ASSESSMENT:	☒ Coursework		☐ Examination		☐ Practical
LANGUAGE OF ASSESSMENT:	English		TRANSLATION REQUIRED (Y/N):	N	
FOR EXAMINATIONS ONLY. SPECIFY BELOW ANY ADDITIONAL MATERIAL(S) TO BE USED IN THE EXAMINATION					
<i>This box will expand as you type</i>					

INTERNAL MODERATOR PLEASE TICK TO INDICATE THAT THE ASSESSMENT INCLUDES:		Please		Comments
		YES	NO	
1	Tasks that are specified clearly, accurately and comprehensibly, with appropriate use of language and neat presentation	☒	☐	
2	Tasks which enable the module learning outcomes to be demonstrated (as per the module syllabus)	☒	☐	
3	Tasks which conform to the assessment described in the module syllabus	☒	☐	
4	Tasks which are written at the appropriate level of the Framework for Higher Education Qualifications (see http://www.qaa.ac.uk/docs/qaa/quality-code/qualifications-frameworks.pdf?sfvrsn=170af781_14).	☒	☐	
5	Clear criteria for assessment and guidance about how marking/grading will be applied	☒	☐	
6	Guidance about expected evidence for submission, e.g. essay or report, word count, bibliography and references	☒	☐	
7	Reference to good academic conduct, for example referencing, plagiarism and Turnitin	☒	☐	
8	Actions to complete <i>This box will expand as you type</i>			
SIGNATURE OF APPROVAL:		SIGNATURE		DATE
INTERNAL MODERATOR: I confirm that this version of the assessment specification is ready to be sent to the Partnership Team Leader				15/11/19

ONLY TO BE COMPLETED IF THE ASSESSMENT IS LINKED TO A COLLABORATIVE PARTNER

PARTNERSHIP TEAM LEADER PLEASE TICK TO INDICATE THAT THE ASSESSMENT INCLUDES:		Please ✓		Comments
		YES	NO	
1	Tasks that are specified clearly, accurately and comprehensibly, with appropriate use of language and neat presentation			
2	Tasks which enable the module learning outcomes to be demonstrated (as per the module syllabus)			
3	Tasks which conform to the assessment described in the module syllabus			
4	Tasks which are written at the appropriate level of the Framework for Higher Education Qualifications (see http://www.qaa.ac.uk/docs/qaa/quality-code/qualifications-frameworks.pdf?sfvrsn=170af781_14).			
5	Clear criteria for assessment and guidance about how marking/grading will be applied			
6	Guidance about expected evidence for submission, e.g. essay or report, word count, bibliography and references			
7	Reference to good academic conduct, for example referencing, plagiarism and Turnitin			
8	Actions to complete <i>This box will expand as you type</i>			
SIGNATURE OF APPROVAL:		SIGNATURE		DATE
PTL: I confirm that this version of the assessment specification is ready to be sent to the External Examiner				

UWTSD PROVISION: please submit the completed document to the appropriate Programme Director.

COLLABORATIVE PROVISION: please submit the completed document (or make available electronically) to the Partnership Team Leader. This must be in accord with specific arrangements for sharing electronic documents (e.g. via SharePoint or similar).

The assessment tasks, criteria and marking scheme should accompany this form

THIS DOCUMENT IS ALSO AVAILABLE IN WELSH

LEVEL 5 ASSESSMENT SPECIFICATION

Student name:		Student ID number:	
Programme:	HND Electrical and Electronic Engineering		
Module:	NETWORKING SYSTEMS FOR ENGINEERS		
PSDE5034	SGEE5008	Contribution to Overall Module Assessment (%):	100%
Lecturer:	Robert Jenkins	Internal Verifier:	Robert Davies
Portfolio Title:	Network Design for Industry using CIDR Subnetting	Word count (or equivalent):	n/a
Submission deadlines:	Element 1: 12/12/2019 Element 2: 13/02/2020 Element 3: 23/04/2020	Return date of provisional marks & written feedback:	Element 1: 09/01/2020 Element 2: 20/02/2020 Element 3: 07/05/2020
Submission method:	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.) Alternative submission method (if applicable): 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.		
Academic honesty / referencing:	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.		

Module Learning Outcomes (from module syllabus)

1. Demonstrate a systemic understanding of networking systems for industrial control and monitoring systems.
2. Design and develop secure networks for industrial automation process applications.

TASK DESCRIPTION

Introduction and Objectives

The network in Figure 1 shows 3 LAN's with industrial devices connected. These are to be interconnected via transparent communication channels using WAN technology. An appropriate class C addressing scheme standard is to be implemented for the system.

You are required to design a network system that consists of 3 routers and six networks that allow the connection between three remote LAN networks. Use the WAN network topology to establish the connections and create an appropriate addressing scheme standard for the network system.

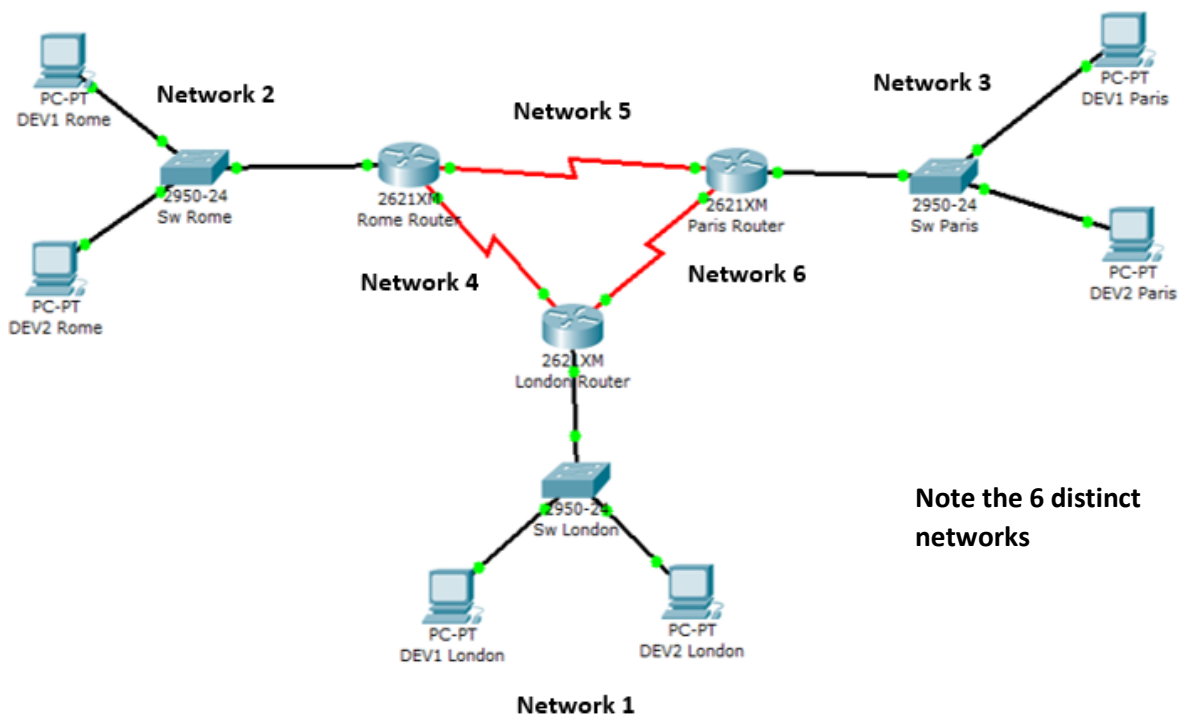


Figure 1: Three router network

Access Control Lists (ACL's) will be implemented to achieve the necessary security for the system, which will enable denial of service for specified devices. The network configuration must be tested using appropriate protocols and errors must be analysed and corrected.

You are required to complete the design and testing of this system in 3 stages, each stage will be treated as an individual element of a portfolio with its own document and submission date. After each element is submitted, you will receive feedback and a provisional mark.

When element 3 is completed, you will be required to combine the 3 documents into 1 pdf file and upload to Turnit-in where the combined feedback and marks will be available for you to view.

Element 1

Evaluate the purpose of the following:

- OSI 7 layer and 4 layer models with reference to the network design.
- Encapsulation, broadcasting and port allocation.

Simplify by reducing the number of networks in the complex network of Figure 1 for the 3 LAN's, to carry out the configuration and test of dynamic addressing and routing.

Design the network system consisting of three LAN networks and use classful addressing that include classes A, B and C.

Interconnect the three LANs using layer 1, 2 and 3 devices.

Implement static and dynamic addressing.

Implement static and dynamic routing.

Carry out analysis on the following common protocols and explain the results:

- WAN (Wide Area Network)
- LAN (Local Area Network)
- DHCP (Dynamic Host Configuration Protocol)
- RIP (Router Information Protocol)

On completion of this element, you should have:

- Carried out the required research for the overall system.
- Successfully designed and built a fully functioning network that has a class A, B and C addressing scheme for the LANs and a separate scheme for the two WANs.
- Implemented and tested successfully static and dynamic addressing with evidence of configuration and test results.
- Implemented and tested successfully static and dynamic routing with evidence of configuration and test results.

Now write a report for this element by the due date as stated on the front page, with the following structure:

1. Introduction
2. Research
3. Design requirements
4. Implementation
5. Test and analysis
6. Evaluation

Element weighting 30%

Submit a paper copy of this element to your tutor by the due date.

Element 2

Implement the 3-router network in Figure 1 above with your own class C addressing scheme.

Implement the network firstly with all 6 networks being sub-netted with a CIDR/28 scheme from a single class C network. The single class C network should be 192.168.ee.0, where 'ee' is the number of your choice. Subnets 1 through 6 should correspond to the 6 networks of Figure1.

You are required to improve the network performance by implementing VLSM (Variable Length Subnet Mask), with networks 1, 2 and 3 being CIDR/27, and 4, 5, and 6 being CIDR/30 (Classless Inter-domain Routing).

Implement ACL (Access Control Lists) on the sub-netted network. This will involve configuring 2 hosts on the London switch and 1 host on the Paris switch. These hosts should be the first and second hosts on the appropriate network: The access control should be:

- A standard ACL that allows London host 1, but denies London host 2, to have any contact with Paris host 1.
- An extended ACL that allows London host 1, but denies London host 2, to have any contact with the Paris hosts.

On completion of this element, you should have:

- Implemented the network in Figure 1 above using subnetting with a CIDR/28 scheme from a single class C network.
- Improved the network by implementing VLSM, with nets 1, 2 and 3 being CIDR/27, and 4, 5 and 6 being CIDR/30.
- Implemented the security using ACL's and be fully functioning.

Now write a report for this element by the due date as stated on the front page, with the following structure:

1. Introduction
2. System configuration requirements
3. Implementation
4. Testing and analysis
5. Evaluation

Element weighting 40%

Submit a paper copy of this element to your tutor by the due date.

Element 3

Improve the network performance of the network in Figure 1 using logical grouping of end devices using a VLAN (Virtual Local Area Network) implemented on the London switch.

Implement and configure part of the network practically using identical layer 1, 2, and 3 hardware, and test the connectivity and security of the devices on the network.

This should include 2 routers and 2 switches with a device on each switch as a minimum.

Test the network using the HTTP (Hypertext Transfer Protocol) protocol by using open source software that can access PLC (Programmable Logic Controller) data across the network.

On completion of this element, you should have:

- Successfully implemented VLAN on the London switch.
- Implemented part of the network in a practical scenario using the level 1, 2 and 3 hardware devices.
- Tested the network using the HTTP protocol with a PLC web server and a PC client station. A simple web page program should send and receive data between the PLC and PC client station.

Now write a report for this element by the due date as stated on the front page, with the following structure:

1. Introduction
2. System configuration requirements
3. Implementation
4. Testing and analysis
5. Conclusion and Recommendations

Element weighting 30%

Combine this document with elements 1 and 2 and upload to Turnit-in by the due date as stated on the front of this document.

Delivery for all elements:

Provide screen shots showing:

- A clear definition of your IP allocation which should follow some standard of your choice
- IP routing table from any one router as this will demonstrate correctness for all 3 routers
- A running config for the routers
- If you implement VLAN's, a running config for the appropriate switch
- Sufficient pings (if tracert does not work properly) to demonstrate your system

You will find it useful to hand annotate your screen shots saying what you have done.

The simulator in advanced mode is not necessary for your sim but it does have the presentation advantage of having multiple windows on a screen.

GUIDANCE FOR STUDENTS IN THE COMPLETION OF TASKS

You are required to combine the three elements of the portfolio into one document in pdf format and upload to Turnit-in on the date shown for element 3.

Your pages should be numbered and your figures must also be numbered and listed. There is no need to include datasheets, instead, simply cite their source. Write in the third person rather than the first person (i.e. do not use the words 'I, me, my, we, us', etc). Note that sections of your report have been identified as places where the marks will be awarded. The Turnit-in Rubric will be used to record your marks with your tutor's feedback.

Your title page for the report should contain the following information:

Course:	HND Electrical and Electronic Engineering
Module:	SGEE5008 Networking Systems for Engineers
Portfolio:	Network Design for Industry using CIDR Subnetting
Name:	?????? ??????
University number:	XXXXXXX
Date submitted:	DD/MM/YYYY

Further guidance:

- Do not use a styled document (template) and don't add your company logo.
- Do not include photographs of course notes or formative classroom work.
- All pages and figures must be numbered and listed in the Table of Contents and List of Figures.
- There is no need to include whole datasheets; simply cite their source or include a "snip" of the relevant information.
- Write all sections in the third person.
- Note which sections of your report have been identified above as places where the marks will be awarded and use your word allocation wisely.
- Save your report as a .pdf with your university number as the file name. Any program printouts can be appended to the report by also converting to a pdf file and by using the college's software combine facility before uploading the final pdf version to TurnIt-In.
- The TurnIt-In rubric will be used to record your marks and provide you with tutor feedback.

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

Significant differences from Level 4 are highlighted in red.

1. Engagement with Literature Skills

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: Assessed by the extent of research and relevant sources in: Element 1 section 2.

2. Knowledge and Understanding Skills

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: Assessed by the design methods, configuration and implementation in: Element 1 sections 1, 3 and 4, Element 2 sections 1, 2 and 3 Element 3 sections 1, 2 and 3.

3. Cognitive and Intellectual Skills

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: Assessed by the test, evaluation and conclusion of the practical design in: Element 1 sections 5 and 6, Element 2 sections 4 and 5, Element 3 sections 4 and 5.

4. Practical Skills

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: Assessed by the methods used in the build and test: Element 1 sections 3, 4, 5, Element 2 sections 2, 3, 4 and Element 3 sections 2, 3, 4.

5. Transferable Skills for Life and Professional Practice

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: Assessed by the written quality of the report which includes spelling and grammar, contents layout and aesthetics in Element 1, 2 and 3 all sections.

Achieving the PLOs for IET/IEng Accreditation

The following PLOs have been targeting to be satisfied or partially satisfied by this assignment. Details are given below. The marking scheme on the next page will also be used to record your PLO achievements and comments will be found in the Turnit-in Rubric.

SM1i - Demonstrate knowledge and understanding of the scientific principles underpinning current networking technologies, and their evolution.

This will be achieved through the design and configuration of the system using current technologies used in networking and the application of the theory in practical configurations in: Element 1 sections 3 and 4, Element 2 sections 2 and 3, Element 3 sections 2 and 3.

EP4i - Demonstrate the ability to use and apply information from technical literature related to networking system used in engineering.

This will be achieved by the implementation part of Element 1 section 4, Element 2 section 3, Element 3 section 3.

D2i - Define a network system engineering problem, identifying any constraints including security and risk issues; intellectual property; codes of practice and standards.

This will be achieved through the research and implementation of Element 1 section 1 and 3, and implementation of Element 2 and 3 section 1 and 2.

D4i - Apply problem-solving skills, technical knowledge and understanding to create or adapt network design solutions that are fit for purpose including operation, maintenance, reliability etc..

This will be achieved in the design requirements and implementation of Element 1 section 3 and 4, the configuration and implementation of Elements 2 and 3 sections 2 and 3.

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
1. Engagement with Literature Skills	
Element 1, section 2 (/10). Research the areas specified:	10
2. Knowledge and Understanding Skills	
Element 1, sections 1, 3 and 4 (/10). Define, design and implementation of network. Element 2, sections 1, 2 and 3 (/10). Configuration and implementation of network parameters. Element 3, sections 1, 2 and 3 (/10). Configuration of practical network.	30
3. Cognitive and Intellectual Skills	
Element 1, sections 5 and 6 (/5). Test and evaluate the results of network operation. Element 2, sections 4 and 5 (/10). Analysis of results from network configuration. Element 3, sections 4 and 5 (/10). Analysis of the results from the practical network.	25
4. Practical Application Skills	
Element 1, sections 3, 4 and 5 (/5). The design, implementation and test procedures of network. Element 2, sections 2, 3 and 4 (/5). Configuration, implementation and test of network parameters of network including network security. Element 3, sections 2, 3 and 4 (/10). Configuration, implementation and test of practical network.	20
5. Transferable Skills for Life and Professional Practice	
Element 1, all sections (/5). Report quality: Element 2, all sections (/5). Report quality: Element 3, all sections (/5). Report quality:	15

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 critical understanding of the well-established)	Major gaps in knowledge with unsatisfactory, uncritical understanding of the subject matter. Much irrelevant material.	Fragmentary knowledge, with only superficial critical understanding. Some significant inaccuracies and/or irrelevant	Limited but adequate knowledge and critical understanding of the well-established concepts and	Knowledge is reasonably detailed and accurate. A good critical understanding of the well-established	Knowledge is reasonably extensive. Exhibits very competent critical understanding of the well-established	Excellent, detailed knowledge and highly critical understanding of the well-established concepts and principles of the	Exceptionally detailed knowledge and outstanding critical understanding of the well-established concepts and

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%
concepts and principles in their field of study; knowledge of the main methods of enquiry in the discipline.)	Substantial inaccuracies. Significantly flawed understanding of the main methods of enquiry in the discipline.	material. Incomplete or partially flawed understanding of the main methods of enquiry in the discipline.	principles within the subject area, with a few gaps in the selection of material. A narrow critical understanding of the main methods of enquiry.	concepts and principles and the main methods of enquiry, with minor gaps in the selection of material.	concepts and principles of the subject and the main methods of enquiry. Breadth and depth of knowledge.	subject and the main methods of enquiry.	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 the limits of their knowledge, and how this influences their analyses and interpretations.

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%
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 and professional practice (Effectively communicate in a variety of forms to specialist and non-specialist audiences; the	Communication medium is inappropriate or misapplied. Work is poorly structured, disorganised and/or confusingly expressed. Very weak use of language and/or	Communication medium is poorly 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	Can communicate in a suitable medium for the audience but with some room for improvement. Mostly ordered presentation and structure in which relevant ideas / concepts are	Can communicate 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	Can communicate well, confidently and consistently in a suitable medium for the audience. Work is coherent, fluent, well-structured and organised. Can work very well autonomously	Can communicate professionally confidently and consistently in a suitable medium for the audience. Work is coherent, very fluent and is presented proficiently. Can work	Can communicate with an exceptionally high level of professionalism, highly suitable for the audience. Work is exceptionally coherent, very fluent and is

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%
qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and decision-making.)	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.	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.	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.	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.	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.	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.	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.