Pearson Higher Nationals in

Computing

EXAMPLE ASSESSMENT BRIEF

Unit: 1 Programming

For use with the Higher National Certificate and Higher National Diploma in Computing

Brief Number: 1, 2 & 3

First teaching from September 2017

Issue 1

Edexcel, BTEC and LCCI qualifications

Edexcel, BTEC and LCCI qualifications are awarded by Pearson, the UK's largest awarding body offering academic and vocational qualifications that are globally recognised and benchmarked. For further information, please visit our qualification websites at www.edexcel.com, www.btec.co.uk or www.lcci.org.uk. Alternatively, you can get in touch with us using the details on our contact us page at qualifications.pearson.com/contactus

About Pearson

Pearson is the world's leading learning company, with 40,000 employees in more than 70 countries working to help people of all ages to make measurable progress in their lives through learning. We put the student at the centre of everything we do, because wherever learning flourishes, so do people. Find out more about how we can help you and your students at qualifications.pearson.com

Please note that this Example Assessment Brief is NOT an authorised assignment brief. It is provided as a reference only.

Centres must develop assignments and assessment materials that meet the needs of their students and align with their curriculum planning. This Example Assessment Brief may be used as a starting point for the development of an assignment, however Centres are expected to modify and revise the Example Assessment Brief to meet the specific needs of their students and curriculum. All assessment briefs must be Internally Verified.

Higher National Certificate/Diploma in Computing

Example Assessment Brief

Student Name/ID Number	
Unit Number and Title	**1: Programming**
Academic Year	
Unit Tutor	
Assignment Title	
Issue Date	
Submission Date	
IV Name & Date	

Submission Format
The submission is in the form of a ten-minute Microsoft® PowerPoint® style presentation to be presented to your colleagues. The presentation can include links to performance data with additional speaker notes and a bibliography using the Harvard referencing system. The presentation slides for the findings should be submitted with speaker notes. You are required to make effective use of headings, bullet points and subsections as appropriate. Your research should be referenced using the Harvard referencing system. The recommended word limit is 500 words, including speaker notes, although you will not be penalised for exceeding the total word limit.

Please note that this Example Assessment Brief is NOT an authorised assignment brief. It is provided as a reference only.

Centres must develop assignments and assessment materials that meet the needs of their students and align with their curriculum planning. This Example Assessment Brief may be used as a starting point for the development of an assignment, however Centres are expected to modify and revise the Example Assessment Brief to meet the specific needs of their students and curriculum. All assessment briefs must be Internally Verified.

Unit Learning Outcomes

LO1 Define basic algorithms to carry out an operation and outline the process of programming an application.

Assignment Brief and Guidance

*Please note that assignment guidance is for reference only and should be more specific in detail to meet customised needs.

You currently work for a software development company that produces software for mobile devices. As you are part of the research and development arm, your role includes investigation into new processes that can benefit the company. One particular area of research that you have been tasked with is the use of algorithms and how they can be used to build more efficient software. This will have an impact on the software developed as efficient software can result in longer battery life and the ability to do more with the limited resources mobile devices have to offer.

As the results will need to be delivered to your peers, consider this as a mini research project that will be presented. You will need to explain what an algorithm is, with examples of their use, comparing their efficiency against brute forcing, and how it will relate to the application development process, down to the implementation in a suitable language.

Research could be conducted on your choice of algorithms, including sorting and searching data or encryption/decryption, compression/decompression.

To present your findings you can build a presentation with links to data showing the performance of an algorithm using Big O notation.

*Please access HN Global for additional resources support and reading for this unit. For further guidance and support on report writing please refer to the Study Skills Unit on HN Global. Link to www.highernationals.com

Please note that this Example Assessment Brief is NOT an authorised assignment brief. It is provided as a reference only.

Centres must develop assignments and assessment materials that meet the needs of their students and align with their curriculum planning. This Example Assessment Brief may be used as a starting point for the development of an assignment, however Centres are expected to modify and revise the Example Assessment Brief to meet the specific needs of their students and curriculum. All assessment briefs must be Internally Verified.

Learning Outcomes and Assessment Criteria		
Pass	**Merit**	**Distinction**
LO1 Define basic algorithms to carry out an operation and outline the process of programming an application		
P1 Provide a definition of what an algorithm is and outline the process in building an application.	**M1** Determine the steps taken from writing code to execution.	**D1** Examine the implementation of an algorithm in a suitable language. Evaluate the relationship between the written algorithm and the code variant.

Please note that this Example Assessment Brief is NOT an authorised assignment brief. It is provided as a reference only.

Centres must develop assignments and assessment materials that meet the needs of their students and align with their curriculum planning. This Example Assessment Brief may be used as a starting point for the development of an assignment, however Centres are expected to modify and revise the Example Assessment Brief to meet the specific needs of their students and curriculum. All assessment briefs must be Internally Verified.

Higher National Certificate/Diploma in Computing

Example Assessment Brief

Student Name/ID Number	
Unit Number and Title	**1: Programming**
Academic Year	
Unit Tutor	
Assignment Title	
Issue Date	
Submission Date	
IV Name & Date	

Submission Format
The submission is in the form of an individual written report. This should be 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 the Harvard referencing system. Please also provide a bibliography using the Harvard referencing system. The recommended word limit is 2,000–2,500 words, although you will not be penalised for exceeding the total word limit.

Please note that this Example Assessment Brief is NOT an authorised assignment brief. It is provided as a reference only.

Centres must develop assignments and assessment materials that meet the needs of their students and align with their curriculum planning. This Example Assessment Brief may be used as a starting point for the development of an assignment, however Centres are expected to modify and revise the Example Assessment Brief to meet the specific needs of their students and curriculum. All assessment briefs must be Internally Verified.

Unit Learning Outcomes
LO2 Explain the characteristics of procedural, object-orientated and event-driven programming, conduct an analysis of a suitable Integrated Development Environment (IDE)
Assignment Brief and Guidance
*Please note that assignment guidance is for reference only and should be more specific in detail to meet customised needs. The research and development team you work with have been tasked with further investigation into how best to build more efficient, secure software. You have been asked to look into programming paradigms and the advantages and disadvantages of using different programming language approaches. You will need to create a report covering findings from research into the characteristics of different programming paradigms – procedural, object-orientated and event-driven programming. Your report should include an explanation of each paradigm, an analysis of suitable IDEs, and an evaluation of source code that would be generated for an application. *Please access HN Global for additional resources support and reading for this unit. For further guidance and support on report writing please refer to the Study Skills Unit on HN Global. Link to www.highernationals.com

Please note that this Example Assessment Brief is NOT an authorised assignment brief. It is provided as a reference only.

Centres must develop assignments and assessment materials that meet the needs of their students and align with their curriculum planning. This Example Assessment Brief may be used as a starting point for the development of an assignment, however Centres are expected to modify and revise the Example Assessment Brief to meet the specific needs of their students and curriculum. All assessment briefs must be Internally Verified.

Learning Outcomes and Assessment Criteria		
Pass	**Merit**	**Distinction**
LO2 Explain the characteristics of procedural, object-orientated and event-driven programming, conduct an analysis of a suitable Integrated Development Environment (IDE)		
P2 Give explanations of what procedural, object-orientated and event-driven paradigms are; their characteristics and the relationship between them.	**M2** Analyse the common features that a developer has access to in an IDE.	**D2** Critically evaluate the source code of an application which implements the programming paradigms, in terms of the code structure and characteristics.

Please note that this Example Assessment Brief is NOT an authorised assignment brief. It is provided as a reference only.

Centres must develop assignments and assessment materials that meet the needs of their students and align with their curriculum planning. This Example Assessment Brief may be used as a starting point for the development of an assignment, however Centres are expected to modify and revise the Example Assessment Brief to meet the specific needs of their students and curriculum. All assessment briefs must be Internally Verified.

Please note that this Example Assessment Brief is NOT an authorised assignment brief. It is provided as a reference only.

Centres must develop assignments and assessment materials that meet the needs of their students and align with their curriculum planning. This Example Assessment Brief may be used as a starting point for the development of an assignment, however Centres are expected to modify and revise the Example Assessment Brief to meet the specific needs of their students and curriculum. All assessment briefs must be Internally Verified.

Higher National Certificate/Diploma in Computing

Example Assessment Brief

Student Name/ID Number	
Unit Number and Title	**1: Programming**
Academic Year	
Unit Tutor	
Assignment Title	
Issue Date	
Submission Date	
IV Name & Date	

Submission Format
The submission is in the form of five documents/files: 1. Stage 1 – Development Document 2. Stage 2 – Report (IDE Evaluation) 3. Stage 3 – Report (Debugging Evaluation) 4. Stage 4 – Report (Evaluation Report) including fully commented source code 5. An installable and executable version of your application You are required to make use of appropriate structure, including headings, paragraphs, subsections and illustrations as appropriate, and all work must be supported with research and referenced using the Harvard referencing system.

Please note that this Example Assessment Brief is NOT an authorised assignment brief. It is provided as a reference only.

Centres must develop assignments and assessment materials that meet the needs of their students and align with their curriculum planning. This Example Assessment Brief may be used as a starting point for the development of an assignment, however Centres are expected to modify and revise the Example Assessment Brief to meet the specific needs of their students and curriculum. All assessment briefs must be Internally Verified.

Unit Learning Outcomes

LO3 Implement basic algorithms in code using an IDE.

LO4 Determine the debugging process and explain the importance of a coding standard.

Assignment Brief and Guidance

*Please note that assignment guidance is for reference only and should be more specific in detail to meet customised needs.

The software development unit of the company you are currently working for have a position available for an application developer which you are interested in applying for. As part of the application process they want to see that you can implement algorithms using an IDE.

Your aim is to create a fully working, secure application that has been developed using an IDE and adheres to coding standards.

The document portfolio should include:

1. Evidence of how the IDE was used to manage the development of your code.
2. An evaluation of developing applications using an IDE versus developing an application without using an IDE.
3. An evaluation of the debugging process in the IDE used and how it helped with development.
4. An evaluation of coding standards and the benefits to organisations of using them.

The working application produced must also be demonstrated.

*Please access HN Global for additional resources support and reading for this unit. For further guidance and support on report writing please refer to the Study Skills Unit on HN Global. Link to www.highernationals.com

Please note that this Example Assessment Brief is NOT an authorised assignment brief. It is provided as a reference only.

Centres must develop assignments and assessment materials that meet the needs of their students and align with their curriculum planning. This Example Assessment Brief may be used as a starting point for the development of an assignment, however Centres are expected to modify and revise the Example Assessment Brief to meet the specific needs of their students and curriculum. All assessment briefs must be Internally Verified.

Learning Outcomes and Assessment Criteria		
Pass	**Merit**	**Distinction**
LO3 Implement basic algorithms in code using an IDE		
P3 Write a program that implements an algorithm using an IDE.	**M3** Use the IDE to manage the development process of the program.	**D3** Evaluate the use of an IDE for development of applications contrasted with not using an IDE.
LO4 Determine the debugging process and explain the importance of a coding standard		
P4 Explain the debugging process and explain the debugging facilities available in the IDE. **P5** Outline the coding standard you have used in your code.	**M4** Evaluate how the debugging process can be used to help develop more secure, robust applications.	**D4** Critically evaluate why a coding standard is necessary in a team as well as for the individual.

Pearson Higher Nationals in

Computing

EXAMPLE ASSESSMENT BRIEF

Unit: 2 Networking

For use with the Higher National Certificate and Higher National Diploma in Computing

Brief Number: 1 & 2

First teaching from September 2017

Issue 1

Edexcel, BTEC and LCCI qualifications

Edexcel, BTEC and LCCI qualifications are awarded by Pearson, the UK's largest awarding body offering academic and vocational qualifications that are globally recognised and benchmarked. For further information, please visit our qualification websites at www.edexcel.com, www.btec.co.uk or www.lcci.org.uk. Alternatively, you can get in touch with us using the details on our contact us page at qualifications.pearson.com/contactus

About Pearson

Pearson is the world's leading learning company, with 40,000 employees in more than 70 countries working to help people of all ages to make measurable progress in their lives through learning. We put the student at the centre of everything we do, because wherever learning flourishes, so do people. Find out more about how we can help you and your students at qualifications.pearson.com

Please note that this Example Assessment Brief is NOT an authorised assignment brief. It is provided as a reference only.

Centres must develop assignments and assessment materials that meet the needs of their students and align with their curriculum planning. This Example Assessment Brief may be used as a starting point for the development of an assignment, however Centres are expected to modify and revise the Example Assessment Brief to meet the specific needs of their students and curriculum. All assessment briefs must be Internally Verified.

Higher National Certificate/Diploma in Computing

Example Assessment Brief

Student Name/ID Number	
Unit Number and Title	**2: Networking**
Academic Year	
Unit Tutor	
Assignment Title	
Issue Date	
Submission Date	
IV Name & Date	

Submission Format
The submission is in the form of an individual written report. This should be 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 the Harvard referencing system. Please also provide a bibliography using the Harvard referencing system. The recommended word limit is 2,000–2,500 words, although you will not be penalised for exceeding the total word limit.

Please note that this Example Assessment Brief is NOT an authorised assignment brief. It is provided as a reference only.

Centres must develop assignments and assessment materials that meet the needs of their students and align with their curriculum planning. This Example Assessment Brief may be used as a starting point for the development of an assignment, however Centres are expected to modify and revise the Example Assessment Brief to meet the specific needs of their students and curriculum. All assessment briefs must be Internally Verified.

Unit Learning Outcomes

LO1 Examine networking principles and their protocols.

LO2 Explain networking devices and operations.

Assignment Brief and Guidance

*Please note that assignment guidance is for reference only and should be more specific in detail to meet customised needs.

You are employed as a Network Engineer by an SME [insert here either a named SME or enable students to choose an SME and use the following insertion 'an SME of your choice'. Students should be encouraged to use their own place of work, if appropriate] and have been asked to investigate and explain networking principles, protocols and devices.

You will need to produce a report for the CEO that includes the following:

1. An introduction to provide an overview of your report.
2. An explanation of networking principles, protocols and devices, including benefits and constraints of networked solutions, the impact of network topology, communication and bandwidth requirements, effectiveness of networking systems, operating principles of networking devices and server types and networking software.

*Please access HN Global for additional resources support and reading for this unit. For further guidance and support on report writing please refer to the Study Skills Unit on HN Global. Link to www.highernationals.com

Please note that this Example Assessment Brief is NOT an authorised assignment brief. It is provided as a reference only.

Centres must develop assignments and assessment materials that meet the needs of their students and align with their curriculum planning. This Example Assessment Brief may be used as a starting point for the development of an assignment, however Centres are expected to modify and revise the Example Assessment Brief to meet the specific needs of their students and curriculum. All assessment briefs must be Internally Verified.

<table>
<tr><th colspan="3">Learning Outcomes and Assessment Criteria</th></tr>
<tr><th>Pass</th><th>Merit</th><th>Distinction</th></tr>
<tr><td colspan="2">LO1 Examine networking principles and their protocols</td><td rowspan="5">LO1 & 2

D1 Considering a given scenario, identify the topology protocol selected for the efficient utilisation of a networking system.</td></tr>
<tr><td>P1 Discuss the benefits and constraints of different network types and standards.

P2 Explain the impact of network topology, communication and bandwidth requirements.</td><td>M1 Compare common networking principles and how protocols enable the effectiveness of networked systems.</td></tr>
<tr><td colspan="2">LO2 Explain networking devices and operations</td></tr>
<tr><td>P3 Discuss the operating principles of networking devices and server types.

P4 Discuss the inter-dependence of workstation hardware with relevant networking software.</td><td>M2 Explore a range of server types and justify the selection of a server, considering a given scenario regarding cost and performance optimisation.</td></tr>
</table>

Please note that this Example Assessment Brief is NOT an authorised assignment brief. It is provided as a reference only.

Centres must develop assignments and assessment materials that meet the needs of their students and align with their curriculum planning. This Example Assessment Brief may be used as a starting point for the development of an assignment, however Centres are expected to modify and revise the Example Assessment Brief to meet the specific needs of their students and curriculum. All assessment briefs must be Internally Verified.

Higher National Certificate/Diploma in Computing

Example Assessment Brief

Student Name/ID Number	
Unit Number and Title	**2: Networking**
Academic Year	
Unit Tutor	
Assignment Title	**LAN Design & Implementation**
Issue Date	
Submission Date	
IV Name & Date	

Submission Format
The submission is in the form of an individual evidence portfolio. This assignment can be completed as a group, but each student must produce their own portfolio, which will contain: • A LAN design plan and blueprint and justification document. • A fully completed test plan including an evaluation of results and recommendations for improvements to LAN. • A proposed and justified maintenance schedule. • Evidence of an implemented network. You are required to make use of headings, paragraphs, subsections and illustrations as appropriate, and all work must be supported with research and referenced using the Harvard referencing system.

Please note that this Example Assessment Brief is NOT an authorised assignment brief. It is provided as a reference only.

Centres must develop assignments and assessment materials that meet the needs of their students and align with their curriculum planning. This Example Assessment Brief may be used as a starting point for the development of an assignment, however Centres are expected to modify and revise the Example Assessment Brief to meet the specific needs of their students and curriculum. All assessment briefs must be Internally Verified.

Unit Learning Outcomes

LO3 Design efficient networked systems.

LO4 Implement and diagnose networked systems.

Assignment Brief and Guidance

*Please note that assignment guidance is for reference only and should be more specific in detail to meet customised needs.

You are employed as a network engineer by a high-tech networking solution development organisation and are working on a project for a local educational institution. You will need to analyse the specification from the institution below for completion of this project within a given timeframe:

People: 200 students, 15 teachers, 12 marketing and administration staff, 5 higher managers including the head of academics and the programme manager, 3 computer network administrators

Resources: 50 student lab computers, 35 staff computers, 3 printers

Building: 3 floors, all computers and printers are on the ground floor apart from the IT labs – one lab located on the first floor and another located on the second floor

Part 1 Design efficient networked systems

1. Prepare a written step-by-step plan of how you are going to design a Local Area Network including a blueprint of your LAN.
2. Justify your choice of devices for your network design.
3. Produce a test plan to evaluate this design for the requirements of bandwidth and cost constraints as per user specifications.
4. Justify the security requirements and quality of services needed for selection of accessories.
5. Suggest a maintenance schedule to support the networked system.

Part 2 Implement test and diagnose networked systems

1. Implement a networked system based on your prepared design.

2. Conduct verification with e.g. Ping, extended ping, trace route, telnet, SSH, etc.
3. Record the test results and analyse these against expected results.
4. Investigate what functionalities would allow the system to support device growth and the addition of communication devices.
5. Discuss the significance of upgrades and security requirements in your recommendations.

*Please access HN Global for additional resources support and reading for this unit. For further guidance and support on report writing please refer to the Study Skills Unit on HN Global. Link to www.highernationals.com

Please note that this Example Assessment Brief is NOT an authorised assignment brief. It is provided as a reference only.

Centres must develop assignments and assessment materials that meet the needs of their students and align with their curriculum planning. This Example Assessment Brief may be used as a starting point for the development of an assignment, however Centres are expected to modify and revise the Example Assessment Brief to meet the specific needs of their students and curriculum. All assessment briefs must be Internally Verified.

Learning Outcomes and Assessment Criteria		
Pass	**Merit**	**Distinction**
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 analyse 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 analyse 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.