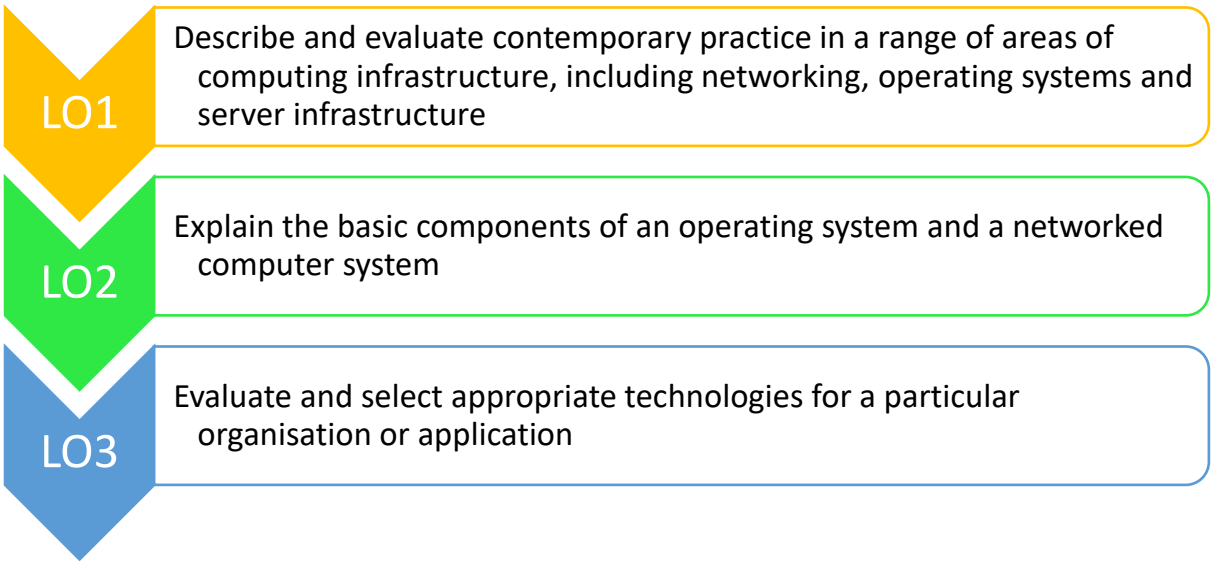
CAH11-01-01 – Networks and Operating Systems
Assessment Brief

1. Specification

This assignment is weighted at 50% of the overall module and will be marked out of 50. This assessment requires approximately 15 hours to complete.

The aim of this assessment is to provide you with an opportunity to demonstrate your understanding and practical skills in Networks and Operating Systems. You are required to submit a portfolio of evidence from practical exercises undertaken during the course. Additionally, you are required to do a review of a research paper and summarise it in a video.

1.1. Learning Outcomes



1.2. Deadlines

Files must be submitted via learn.gold.	**Thursday, 20th March 2025 15:59 pm**

2. Important Information

All work is to be **completed individually**, except where explicitly stated, and you will only be able to receive Marks for your own work. You are responsible for the security and integrity of your own files, and you must not permit others access to your assignment work. **Plagiarism** or paraphrasing without due accreditation will be dealt with severely as set out in the University Infringement of Assessment Regulations and detailed in the Programme Handbook. You can also refer to the university guidebook on plagiarism such as Academic Misconduct Policy and Procedures

Students are permitted to use **AI tools** used in an assistive role within the assessment. However, the student must declare in the submission the used tool(s) and how did you use it. Examples of where AI might be used in an assistive category include:

- Drafting and structure content.
- Supporting the writing process in a limited manner.
- As a support tutor.
- Supporting a particular process such as translating content.
- Giving feedback on content or proofreading content

However, **students cannot use AI tools to do the assessment** for you as the work must be completely done by the students. All AI generated content must be validated by the student.

You are expected to submit work in the file formats requested. Submitting links to files saved elsewhere in the cloud will not be considered and will result in a zero mark. The actual files must be loaded to Canvas and readily available to the assessor. After uploading and submitting your files, you must check that you can also retrieve and open them. It is your responsibility to ensure files are not corrupted at the time of submission and to report any issues immediately to the help desk, copying in your lecturer and to seek alternative arrangements when required.

3. Tasks

You are required to complete two main tasks; the tasks details can be found below:

1. **E-Portfolio of Evidence (25%):**
   Compile a portfolio of evidence from practical exercises completed during the course. This may include code samples, design documents, project notes, or any relevant material that demonstrates your practical engagement with the course material.

2. **Literature Review (25%):**
   A recorded video presenting a structured review of a research paper from the suggested list of papers. The review must have four main sections, i.e., 1. Introduction, 2. Contributions, 3.Results, 4. Discussion. The introduction should provide background on the problem and a review of relevant literature. The contribution section should describe the work done by scholars in the field. The results section should detail the methodology used to evaluate performance. Finally, the discussion section should provide a critical review of the results and contributions, including any limitations or areas for future research.

4. Deliverables:

1. E-portfolio link showing your weekly work. The portfolio **must be accessible** to the module delivery teams (must be made public).
2. A pre recorded video of the literature review. There is not limit to the length of the video, but ideally it should be between 10-15min.

5. E-portfolio Specification

The portfolio must be hosted online on GitHub or a similar publicly accessible platform. It should be organised as a weekly log of your work. You may include Jupyter Notebooks or PDF files that clearly document your progress, practical engagement with the course material, and reflections on your learning journey. Ensure that the portfolio link is correctly submitted and accessible to the module delivery team.

6. Literature Review Structure

The literature review must be summarised in a short video that should include the following sections:

- **Introduction** (1-3 slides): This should provide detailed information about the work, including its background, motivation, and scope.
- **Contribution/Methodology** (3-5 slides): This should describe the methods and techniques that were used in the paper.
- **Results and Discussion** (4-6 slides): This should present the findings of the paper in a clear and concise manner. The results should be interpreted and discuss their implications.

You may use any screen recording software of your choice (such as OBS Studio, or Microsoft PowerPoint's recording feature) to create your presentation. Students requiring alternative arrangements due to technical limitations or accessibility needs should contact the module leader at least two weeks before the submission deadline.

7. List of suggested research papers:

The following is a list of great research papers on the topic, please use one of them for the second task. If you prefer to use a paper not from this list please consult with the module leader first.

1. Felter, W., Ferreira, A., Rajamony, R. and Rubio, J., 2015, March. An updated performance comparison of virtual machines and linux containers. In 2015 IEEE international symposium on performance analysis of systems and software (ISPASS) (pp. 171-172). IEEE.
2. Sun, H., Sun, K., Wang, Y. and Jing, J., 2015, October. TrustOTP: Transforming smartphones into secure one-time password tokens. In Proceedings of the 22nd ACM SIGSAC Conference on Computer and Communications Security (pp. 976-988).
3. Arnautov, S., Trach, B., Gregor, F., Knauth, T., Martin, A., Priebe, C., Lind, J., Muthukumaran, D., O'keeffe, D., Stillwell, M. and Goltzsche, D., 2016, November. Scone: Secure linux containers with intel sgx. In OSDI (Vol. 16, pp. 689-703).
4. Ismail, B.I., Goortani, E.M., Ab Karim, M.B., Tat, W.M., Setapa, S., Luke, J.Y. and Hoe, O.H., 2015, August. Evaluation of docker as edge computing platform. In 2015 IEEE conference on open systems (ICOS) (pp. 130-135). IEEE.
5. Hoque, S., De Brito, M.S., Willner, A., Keil, O. and Magedanz, T., 2017, July. Towards container orchestration in fog computing infrastructures. In 2017 IEEE 41st Annual Computer Software and Applications Conference (COMPSAC) (Vol. 2, pp. 294-299). IEEE.
6. Combe, T., Martin, A. and Di Pietro, R., 2016. To docker or not to docker: A security perspective. IEEE Cloud Computing, 3(5), pp.54-62.
7. Casalicchio, E. and Perciballi, V., 2017, April. Measuring docker performance: What a mess!!!. In Proceedings of the 8th ACM/SPEC on International Conference on Performance Engineering Companion (pp. 11-16).

8. Marking Criteria

Task 1 – E-Portfolio (25 Marks)

Score Range	Level	Description
0-2.5	Not Attempted	e-Portfolio is missing or only a few labs are uploaded. Minimal effort.
2.5-5	Very Basic	Less than half of the labs are uploaded, with partial completion of questions and challenges.
5-7.5	Basic	Most labs are uploaded, but some questions and challenges may be incomplete or lacking in quality.
7.5-10	Developing	All labs are uploaded, though some questions and challenges may not be fully complete.
10-12.5	Clear and Complete	All labs are uploaded, with most questions and challenges addressed in a clear and organised manner.
12.5-15	Thorough	All labs are completed with thoughtful responses and solutions to challenges.
15-17.5	Comprehensive	Well-documented solutions and complete responses for all labs, with thorough work on challenges.
17.5-20	Detailed and Professional	High-quality completion of all labs, with full documentation and professional approach to all challenges.
20-22.5	Rigorous and Insightful	All labs and challenges are completed with exceptional detail, insight, and full documentation.
22.5-25	Expert-Level	e-Portfolio is expertly completed, with comprehensive solutions, professional documentation, and clear mastery of all labs and challenges.

Task 2 – Literature Review

Introduction (5 Marks)

Mark Range	Level	Description
0-0.5	Not Included or Irrelevant	Abstract and/or introduction are missing or do not relate to the paper. Lacks any meaningful context or background.
0.5-1	Very Basic	Minimal information is presented, with limited or unclear paper relevance. Key elements such as objectives, background, and scope are mostly missing.
1-1.5	Basic	Provides a basic overview of the paper, though may lack depth or clarity. Key aspects like objectives and background may be incomplete.
1.5-2	Developing	A clear but limited summary of the paper, with background and objectives. Some aspects of the abstract or introduction may lack detail, clarity, or structure.
2-2.5	Clear and Structured	Introduction is clearly presented, covering background, objectives, and relevance in an organised way. Some minor details may be missing.
2.5-3	Thorough	Provides a thorough summary and background, clearly stating objectives and project relevance. Shows good structure and understanding.
3-3.5	Comprehensive	Well-organised and comprehensive, with a clear and detailed summary of the paper objectives, methods, and background, providing strong context.
3.5-4	Detailed and Insightful	Presents a detailed and insightful overview, effectively setting up the paper with in-depth context, objectives, and background in a clear, engaging manner.
4-4.5	Excellent and Rigorous	Excellent quality with a rigorous and well-structured presentation of background, objectives, and significance of the paper.
4.5-5	Expert-Level	Expertly crafted introduction, providing a comprehensive, precise, and highly relevant summary of the paper, with deep clarity, insight, and professional structure.

Contribution/Methodology (10 Marks)

Mark Range	Level	Description
0-1	Not Included	Methodology is missing or irrelevant to the project requirements.
1-2	Very Basic	A minimal or incomplete description of the methods and techniques used, with limited clarity or relevance.
2-3	Basic	A basic outline of methods and techniques used is provided, but some aspects may lack detail or clarity. Limited justification for choices.
3-4	Developing	A generally complete description of methods and techniques used, though some detail or justification may be lacking. Methodology is mostly appropriate.
4-5	Clear and Justified	A clear and well-structured description of methods and techniques used, with strong justification for choices, demonstrating understanding.
5-6	Thorough	The methodology is thoroughly described, with solid justification, covering all aspects of the project in a logical and appropriate way.
6-7	Comprehensive	A comprehensive and well-organised methodology, with thorough explanations and clear alignment with project objectives.
7-8	Detailed and Insightful	Methodology is detailed, insightful, and professionally explained, with full justification for all methods used.
8-9	Excellent and Rigorous	A rigorous, clear, and concise methodology that fully aligns with project goals and is professionally justified.
9-10	Expert-Level	An expertly developed methodology, fully justified and highly relevant, demonstrating expert understanding and execution.

Results and Discussion (10 Marks)

Score Range	Level	Description
0-1	Not Included	Results and discussion are missing or irrelevant to the paper.
1-2	Very Basic	Minimal or incomplete presentation of findings, with limited or no interpretation or discussion.
2-3	Basic	Basic presentation of findings; interpretation and discussion are present but may lack depth or clarity.
3-4	Developing	Findings are presented clearly with some interpretation, though insights or structure may be lacking.
4-5	Clear and Structured	Results are presented clearly, with interpretation and discussion in a well-organised manner. Some insight is evident.
5-6	Thorough	Clear and well-structured findings, with thoughtful interpretation and discussion showing a thorough understanding.
6-7	Comprehensive	Comprehensive results, with organised, insightful interpretation and a well-rounded discussion.
7-8	Detailed and Insightful	Detailed presentation and insightful discussion of implications, showing a strong grasp of results.
8-9	Excellent and Rigorous	Clear and rigorous presentation of results with a highly insightful and organised discussion of implications.
9-10	Expert-Level	Expertly presented results with deep, insightful discussion that fully explores the implications and aligns with project objectives.