# Assessment cover

**STUDENTS, PLEASE COPY THIS PAGE AND USE AS THE COVER PAGE FOR YOUR SUBMISSION**

| Module No: | **COMP7024** | Module title: | **Operating Systems Security and Development** |
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| Assessment title : | **Coursework** |
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| Due date and time**:** | **01/05/2024 17:00** |
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| Estimated total time to be spent on assignment: | 35 hours per student |
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**LEARNING OUTCOMES**

| **On successful completion of this module, students will be able to achieve the module following learning outcomes (LOs):** *LO numbers and text copied and pasted from the module descriptor* |
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| LO 1: Demonstrate a thorough understanding of the fundamentals of OS design, including process/thread, file, IO and memory management. |
| LO 2: Create system-level software that modifies and extends existing operating systems. Conduct experiments designed to evaluate the performance, security and reliability of their modifications and additions. |
| LO 3: Critically evaluate the security, reliability and protection in a given OS configuration. Use the results of the evaluation to produce recommendations for hardening the system. |
| LO 4: Demonstrate a thorough understanding of multi-threaded/process systems through the design and implementation of communicating, multi-threaded systems software. |

| **Engineering Council AHEP4 LOs assessed (from S1 2022-23)** *LOs copied and pasted from the AHEP4 matrix* | |
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**STUDENT NAMES (ONLY IF GROUP ASSIGNMENT, OTHERWISE ANONYMOUS)**

| Student No: | Student Name: | Group Name and Number: |
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| **1.** | | |

**Statement of Compliance *(please tick to sign)***

☐ I declare that the work submitted is my own and that the work I submit is fully in accordance with the University regulations regarding assessments (*www.brookes.ac.uk/uniregulations/current*)

# COMP7024- Operating Systems Security and Development
# Coursework- Part 2: OS Security Improvement
# Semester 2- 2023-24

## Part 2: Implementation, Testing, and Presenting the Results (50%)

## Learning outcome

LO 1: Demonstrate a thorough understanding of the fundamentals of OS design, including process/thread, file, IO and memory management.
LO 2: Create system-level software that modifies and extends existing operating systems. Conduct experiments designed to evaluate the performance, security and reliability of their modifications and additions.
LO 3: Critically evaluate the security, reliability and protection in a given OS configuration. Use the results of the evaluation to produce recommendations for hardening the system.
LO 4: Demonstrate a thorough understanding of multi-threaded/process systems through the design and implementation of communicating, multi-threaded systems software.

## Task

Following coursework 1, in this part of the coursework you will

1. Implement the identified method (12.5% of the overall module mark),
2. Test and evaluate the identified method, that includes a description of the method or experiment for evaluating the result of the work (15% of the overall module mark),
3. Discuss the achieved result and show that the implementation could improve the gaps or areas of improvement (10% of the overall module mark),
4. Present a conclusion that summarise the work and includes some limitation in conducting the work and possible areas for future works (10% of the overall module mark), and
5. References (using Harvard or Numerical style of referencing) and proper citation (2.5% of the overall module mark).

## *Deliverable, word limit, and deadline*

This exercise is worth 50% of the total marks for the module.
Your report should be structured as listed in the task section; the mark for each section listed there.

Submission

- Submit your final report via Moodle by 1st May 2024, 5:00 PM.
- Your report must be 1500 words (excluding references, tables, figures, and individual sesion).

- The reports longer than 20% of the word limit will be penalised; the extra words will not be marked.
- Marks and feedback will be available on Moodle 3 weeks after submission.
- This coursework is an individual piece of work. The University rules concerning plagiarism, syndication and cheating apply. Using AI tools is allowed but your report must be your own writing. Copying and pasting form AI tools affect your mark and can also be considered as plagiarism as it's someone elses's work.
- Version Control: You'll need to use a version control platform that records your report development history i.e., Google Doc or GitHub. Your report will include the link to your repository. If you use any other repository, you must justify this in your report Appendices. Reports without a valid version control history will not be acceptable.

**Please do Read the marking rubric to better understand what you need to include in your report and how you should do it.**

## *Marking rubric*

| Weight | Section | Mark distribution | | | | | |
|---|---|---|---|---|---|---|---|
| | | **0** | **1 to <50** | **50 to <60** | **60 to <70** | **70 to <100** | **100** |
| **12.5%** | Implementation: Implement the identified method. | Not presented | Inadequately addressed: Poor quality content; incomplete /irrelevant. | Good: Good implementation, addressing most of the required features as explained in the first part of the coursework. | Very good: A very good implementation, addressing almost all the required features as explained in the first part of the coursework. | Excellent: Excellent implementation, complete and concise following all the required features as explained in the first part of the coursework. | Perfect: Complete, precise, clear, recent, well-structured, well-written, parsimonious, and covers all listed in the previous column. No evidence of using AI in completing the work/report. |
| **15%** | Validation: Test and evaluate the identified method, that includes a description of the method or experiment for evaluating the result of the work | | | Good: Good validation section with a clear test plan, covering most of the implemented features with a presentation of the results. | Vary good: A very good validation section with a clear and concise test plan, covering almost all the implemented features with a clear presentation of the results. | Excellent: Excellent validation section with a clear and concise test plan, covering all the implemented features with a clear and complete presentation of the results. | |
| **10%** | Discussion: Discuss the achieved result and show that the implementation could improve the gaps or areas of improvement | | | Good: Good discussion section with some explanation of improvements achieved from conducting the work and presenting some analysis for the achieved results. | Very good: A very good discussion section with a clear explanation of improvements achieved from conducting the work and presenting some comparison of the results with some similar past work/system before applying the suggested changes. | Excellent: Excellent discussion section with a clear and concise explanation of improvements achieved from conducting the work focusing on the results and comparing them with some similar past work/system before applying the suggested changes. | |
| **10%** | Conclusion: Present a conclusion that | | | Good: Good conclusion section that somehow summarises the conducted work, achieved | Very good: A very good conclusion section that clearly and almost fully summarises | Excellent: Excellent conclusion section that clearly, concisely, and fully summarises the conducted work, | |

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| | summarise the work and includes some limitation in conducting the work and possible areas for future works. | | | result, the importance of the work, potential market and benefit, limitations faced, along with some potential improvement that can be made to complete the work as potential future work. | the conducted work, achieved result, the importance of the work, potential market and benefit, limitations faced, along with some potential improvement that can be made to complete the work as potential future work. | achieved result, the importance of the work, potential market and benefit, limitations faced, along with some potential improvement that can be made to complete the work as potential future work. | |
| **2.5%** | References (using Harvard or Numerical style of referencing). | | | Acceptable: An acceptable list of some related valid references provided, which some cited inside the report. | Very Good: A very good list of some related valid references is provided, which some cited inside the report. | Excellent: An excellent well-structured reference list containing valid resources/scholars, which all were cited inside the report. | |