MODULE TITLE: Operating Systems in the Cyber Context

MODULE CODE: WM144

MODULE DATES: 21 - 22

STUDENT ID NUMBER (name not required):

Coursework Declaration
By making a submission against this specification, I declare that the work contained is my own, unless otherwise acknowledged. No substantial part of the work submitted has also been submitted by me in other assessments for any other assessed course, and I acknowledge that if this has been done an appropriate reduction in the mark I might otherwise have received will be made. The submission will be passed through the Turnitin system for plagiarism testing. Ensure your work is thoroughly cited/referenced and does not contain 'copy and paste text'. All cases of suspected plagiarism are treated seriously and could affect the outcome of your final mark.

I have used a proof-reader, paid or unpaid, to support the submission of this assignment:
☐ YES
☐ NO
The University expects all proof-readers to comply with its policy in this area.
By ticking 'yes', you confirm that the proof-reader was made aware of and has complied with the University's proofreading policy, found here:
https://www2.warwick.ac.uk/services/aro/dar/quality/categories/examinations/policies/v_proofreading/

DEADLINE: Monday 2nd May 2022

If assessed work is submitted late, the following penalties will be incurred:

- Penalties for lateness may be applied at the rate of a 5 marks deduction per University working day after the due date, up to a maximum of 10 working days late. After this period the work may be counted as a non-submission.

Note - submission after the deadline time on the submission day will count as 1 day late

BSc Cyber Security – WM 144 Operating Systems in the Cyber Context (Individual Assignment)

1 Introduction

During this course, you have studied the low level functioning of general purpose operating systems. For this coursework, you are required to consolidate your learning into a piece of written work that illustrates the things that you have learned and in so doing, explicitly demonstrate your attainment of each of the three learning outcomes of the module.

2 Assessment

This assignment requires that you write a paper of 2000 (two thousand) words explaining the lifecycle of a Linux process that is started from, and terminates at, the command line.

Assume – as a minimum - that the program in question is started by an unprivileged user, that it opens, reads and writes to a file and that it uses memory. If you wish to consider other behaviours such as network access or user interaction it may give you more opportunity to demonstrate your understanding. It need not be a particularly complex program and you may find it beneficial to select a real example program rather than attempting to describe a generic concept.

You should discuss the overall context within which the program is running – e.g. the general purpose operating system, the relationship between the user and kernel space and the process, memory and file management operations.

You should discuss where security controls are involved – e.g. (if appropriate for your process) file permissions, kernel and user space and memory protection.

Diagrams are permitted and are not considered to be part of the word count.

3 Submission - DEADLINE: Monday 2nd May 2022

You will submit a single PDF document to Tablula. The uploaded file name will be of the form oscc-<studentID>.pdf where <studentID> is your university ID.

4 Marking

The assessment will account for 100% of the overall module mark.

The following three criteria will be given equal weighting and account for 90% of the mark:

1. Articulate the key principles behind the organisation and operation of a typical general-purpose operating system. (Learning Outcome 1)
2. Explain how simple process, memory and file management algorithms and data structures work. (Learning Outcome 2)
3. Discussion of operating system security and protection mechanisms. (Learning Outcome 3)

You should aim to write clearly and concisely with correct grammar, spelling and correct academic referencing. Your structure and formatting should be clear and logical. 10% of the mark will be assigned on your ability to fulfil these criteria.

You should demonstrate your ability to describe and explain how parts of an operating system work.

Be aware that this is the coursework for an operating systems in the cyber context module. Explaining how a web browser works will not demonstrate your understanding of how an operating system works.

Please see the associated coursework marksheet, distributed with this coursework specification, for the relevant mark descriptors for the various grade bands.