COMP3520 Operating Systems Internals
Assignment 2
Part 2 Marking Scheme

Discussion Document

Each question is allocated a set number of points, reflecting its relative importance. The total number of points that you obtain is your concepts performance score. In addition, a grade is assigned for appropriate use of *Academic English*.

Your concepts performance score and *Academic English* grade collectively determine your Assignment 2 discussion document mark.

Question 1

Criteria	Points
• Provides a substantial comparison of the First Come First Served, Round Robin and Highest Response Ratio Next scheduling schemes in terms of key characteristics, potential advantages and potential disadvantages	3

• Provides a substantial but incomplete comparison of the First Come First Served, Round Robin and Highest Response Ratio Next scheduling schemes in terms of key characteristics, potential advantages and / or potential disadvantages
 	
OR
 	
• Provides a substantial comparison of any TWO of the following scheduling schemes in terms of key characteristics, potential advantages and / or potential disadvantages:
   o First Come First Served
   o Round Robin
   o Highest Response Ratio Next
 	
OR
 	
• Describes the First Come First Served, Round Robin and Highest Response Ratio Next scheduling schemes in terms of key characteristics, potential advantages and potential disadvantages
	2

• Outlines the First Come First Served, Round Robin and Highest Response Ratio Next scheduling schemes in terms of key characteristics, potential advantages and / or potential disadvantages OR • Describes any TWO of the following scheduling schemes in terms of key characteristics, potential advantages and / or potential	1

disadvantages:
   o First Come First Served
   o Round Robin
   o Highest Response Ratio Next
 	
OR
 	
• Repeats relevant material verbatim or near-verbatim from a cited or referenced reliable source AND
• Addresses the requirements of the question
	2

• Performance does not meet the criteria above	0

Question 2a

Criteria	Points
• Provides a valid explanation of the operation of the Fair-Share Scheduling scheme	2
• Provides some key characteristics and / or features of the Fair-Share Scheduling scheme OR • Repeats relevant material verbatim or near-verbatim from a cited or referenced reliable source AND • Addresses the requirements of the question	1
• Performance does not meet the criteria above	0

Question 2b

Criteria	Points
• Discusses potential advantages and potential disadvantages of the Fair-Share Scheduling scheme in depth	2
• Outlines some advantages and / or disadvantages of the Fair-Share Scheduling scheme OR • Repeats relevant material verbatim or near-verbatim from a cited or referenced reliable source AND • Addresses the requirements of the question	1
• Performance does not meet the criteria above	0

Question 3

Criteria	Points
• Provides a detailed description, in English and pseudocode, of the algorithm that was used to implement VSED • Documents all modifications to the original program that was provided	5
• Provides an adequate description, in English and pseudocode, of the algorithm that was used to implement VSED • Documents modifications to the original program that was provided	4
• Provides a basic description, in English and/or pseudocode, of the algorithm that was used to implement VSED	3
• Provides a limited description, in English and/or pseudocode, of the algorithm that was used to implement VSED	2
• Outlines, in English and/or pseudocode, some aspects of the algorithm that was used to implement VSED	1
• Performance does not meet the criteria above	0

Question 3

Question 4a

Criteria	Points
• Provides a valid random job list that satisfies the requirements of the question	1
• Performance does not meet the criteria above	0

Question 4b

Criteria	Points
• States the average turnaround time and the average waiting time for all specified runs as specified in the question	1
• Performance does not meet the criteria above	0

Note: The behaviour of the jobs during the execution of the student's implementation of VSED is to be used to determine the average turnaround time and average waiting time. If this implementation does not work, crashes or hangs, then zero points must be awarded for this question.

Question 4c

Criteria	Points
• Provides a valid random job list that satisfies the requirements of the question	1
• Performance does not meet the criteria above	0

Question 4d

Criteria	Points
• States the average turnaround time and the average waiting time for all specified runs as specified in the question	1
• Performance does not meet the criteria above	0

Note: The behaviour of the jobs during the execution of the student's implementation of VSED is to be used to determine the average turnaround time and average waiting time. If this implementation does not work, crashes or hangs, then zero points must be awarded for this question.

Question 4e

Criteria	Points
• Provides an in-depth comparison of the performance results under different job and quanta settings in parts 4(b) and 4(d) • Provides an insightful analysis of VSED in the light of the results	6
• Provides a substantial comparison of the performance results under different job and quanta settings in parts 4(b) and 4(d) • Provides a sound analysis of VSED in the light of the results	5
• Compares performance results under different job and quanta settings in parts 4(b) and 4(d) • Discusses VSED in terms of performance characteristics, strengths and	4

weaknesses in the light of the results	
• Compares performance results under different job and quanta settings in parts 4(b) and 4(d) • Describes some performance characteristics, strengths and / or weaknesses of VSED in the light of the results	3
• Provides a limited comparison of performance results under different job and quanta settings in parts 4(b) and 4(d) • Outlines some performance characteristics, strengths and / or weaknesses of VSED in the light of the results	2
• Provides a limited comparison of performance results under different job and quanta settings in parts 4(b) and 4(d) OR • Makes general statements about VSED in the light of the results	1
• Performance does not meet the criteria above	0

Note: If credit has been refused for both questions 4(b) and 4(d) due to VSED implementation failure, then zero points must be awarded for this question.

Question 5a

Criteria	Points
• States the average turnaround time and the average waiting time for all specified runs as specified in the question	1
• Performance does not meet the criteria above	0

Note: The behaviour of the jobs during the execution of the student's implementation of VSED is to be used to determine the average turnaround time and average waiting time. If this implementation does not work, crashes or hangs, then zero points must be awarded for this question.

Question 5b

Criteria	Points
• Provides an in-depth comparison of the performance results under different quanta settings in part 5(a) • Describes and relates implications in terms of performance characteristics, strengths and weaknesses of VSED in the light of the results	5
• Compares performance results under different quanta settings in part 5(a) • Describes some implications in terms of performance characteristics, strengths and weaknesses of VSED in the light of the results	4
• Compares performance results under different quanta settings in part 5(a) • Describes some performance characteristics, strengths and / or weaknesses of VSED in the light of the results	3
• Provides a limited comparison of performance results under different quanta settings in part 5(a) • Outlines some performance characteristics, strengths and / or weaknesses of VSED in the light of the results	2
• Provides a limited comparison of performance results under different quanta settings in part 5(a) OR • Makes general statements about VSED in the light of the results	1
• Performance does not meet the criteria above	0

Note: If credit has been refused for question 5(a) due to VSED implementation failure, then zero points must be awarded for this question.

Question 6a

Criteria	Points
• States the average turnaround time and the average waiting time for all specified runs as specified in the question	1
• Performance does not meet the criteria above	0

Note: The behaviour of the jobs during the execution of the student's implementation of VSED is to be used to determine the average turnaround time and average waiting time. If this implementation does not work, crashes or hangs, then zero points must be awarded for this question.

Question 6b

Criteria	Points
• Provides an in-depth comparison of the performance results in part 6(a) against the performance results in part 5(a) • Describes and relates implications in terms of performance characteristics, strengths and weaknesses of VSED in the light of the results	5
• Provides a substantial comparison of the performance results in part 6(a) against the performance results in part 5(a) • Describes some implications in terms of performance characteristics, strengths and weaknesses of VSED in the light of the results	4
• Compares performance results in part 6(a) against the performance results in part 5(a) • Describes some performance characteristics, strengths and / or weaknesses of VSED in the light of the results	3
• Provides a limited comparison of performance results in part 6(a) against the performance results in part 5(a) • Outlines some performance characteristics, strengths and / or weaknesses of VSED in the light of the results	2
• Provides a limited comparison of performance results in part 6(a) against the performance results in part 5(a) OR • Makes general statements about VSED in the light of the results	1
• Performance does not meet the criteria above	0

Note: If credit has been refused for question 5(a) or 6(a) due to VSED implementation failure, then zero points must be awarded for this question.

Question 7a

Criteria	Points
• States the average turnaround time and the average waiting time for all specified runs as specified in the question	1
• Performance does not meet the criteria above	0

Note: The behaviour of the jobs during the execution of the student's implementation of VSED is to be used to determine the average turnaround time and average waiting time. If this implementation does not work, crashes or hangs, then zero points must be awarded for this question.

Question 7b

Criteria	Points
• Provides an in-depth comparison of the performance results in part 7(a) against the performance results in parts 5(a) and 6(a) • Describes and relates implications in terms of performance characteristics, strengths and weaknesses of VSED in the light of the results	5
• Provides a substantial comparison of the performance results in part 7(a) against the performance results in part 5(a) and 6(a) • Describes some implications in terms of performance characteristics, strengths and weaknesses of VSED in the light of the results	4
• Compares performance results in part 7(a) against the performance results in part 5(a) and / or part 6(a) • Describes some performance characteristics, strengths and / or weaknesses of VSED in the light of the results	3
• Provides a limited comparison of performance results in part 7(a) against the performance results in part 5(a) and / or part 6(a) • Outlines some performance characteristics, strengths and / or weaknesses of VSED in the light of the results	2
• Provides a limited comparison of performance results in part 7(a) against the performance results in part 5(a) and / or part 6(a) OR • Makes general statements about VSED in the light of the results	1
• Performance does not meet the criteria above	0

Note: If credit has been refused for question 5(a), 6(a) or 7(a) due to VSED implementation failure, then zero points must be awarded for this question.

Use of Academic English

Criteria	Grade
• Demonstrates excellent skills in using *Academic English* • Skilfully uses language that is always or nearly always correct and appropriate to audience, purpose and context with no or very infrequent minor lapses • Makes a genuine attempt at **all** questions	A
• Demonstrates well-developed skills in using *Academic English* • Uses comprehensible language that is correct and appropriate to audience, purpose and context, possibly with infrequent minor lapses • Makes a genuine attempt at questions worth in **excess** of 75 % of the available points	B
• Demonstrates satisfactory skills in using *Academic English* • Uses comprehensible language that is mostly correct and appropriate to audience, purpose and context, possibly with occasional spelling errors and/or occasional grammatical errors and/or infrequent use of colloquialisms and/or infrequent instances of inappropriate tone • Makes a genuine attempt at questions worth in **excess** of 50 % of the available points	C

• Demonstrates limited skills in using *Academic English* AND
• Uses mostly comprehensible language that is not always appropriate to audience, purpose and context due to ONE or more of the following issues:
   o Substantial spelling errors;
   o Substantial grammatical errors;
   o Frequent use of colloquialisms;
   o Frequent instances of inappropriate tone; OR
   o Infrequent inappropriate use of non-English words
 	
  OR
 	
• Demonstrates basic skills in using *Academic English* AND
• Uses comprehensible language that is mostly or always correct and appropriate to audience, purpose and context, possibly with occasional spelling errors and/or occasional grammatical errors and/or infrequent use of colloquialisms and/or infrequent instances of inappropriate tone AND
• Fails to make a genuine attempt at questions worth in **excess** of 50 % of the available points
	D

• Demonstrates elementary skills in using *Academic English* • Uses language that is frequently confusing and inappropriate to audience, purpose and context due to spelling errors, grammatical errors, inappropriate tone, and/or use of colloquialisms and/or inappropriate use of non-English words to an extent that it substantially impedes understanding	E
• Refused credit by the COMP3520 examiner due to persistent failure to make a serious attempt at using *Academic English*, e.g. by very frequent use of colloquialisms, deliberate repeated use of offensive	N

language, excessive use of hybridized forms of English that are substantially influenced by non-English grammar, or frequently and blatantly inappropriate use of non-English words	

Discussion Document Mark Calculation Scheme

The discussion document mark y is calculated as follows where x is the concepts performance score:

- If the Academic English grade is "A", then $y = x$.
- If the Academic English grade is "B", then $y = x$ if $x \leq 20$ and $y = 4 + 0.8 * x$ if $x > 20$.
- If the Academic English grade is "C", then $y = x$ if $x \leq 20$ and $y = 10 + 0.5 * x$ if $x > 20$.
- If the Academic English grade is "D", then $y = x$ if $x \leq 12$ and $y = \min(6 + 0.5 * x, 20)$ if $x > 12$.
- If the Academic English grade is "E", then $y = \min(x, 12)$.
- If the Academic English grade is "N", then $y = 0$.
- Notwithstanding the above statements, in the event of disqualification from the assignment, $y = 0$.