Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Computer Information Systems	120	CIS 120 04/25/2022-Linux/UNIX I: Fundamentals
College	Division	Department
Business and Computer Technologies	Business and Computer Technologies	Computer Science & Information Technology
Faculty Preparer		Scott Shaper
Date of Last Filed Assessment Report		

I. Review previous assessment reports submitted for this course and provide the following information.

1. Was this course previously assessed and if so, when?

   No

2. Briefly describe the results of previous assessment report(s).

   3.

4. Briefly describe the Action Plan/Intended Changes from the previous report(s), when and how changes were implemented.

   5.

II. Assessment Results per Student Learning Outcome

Outcome 1: Demonstrate setting file and folder permissions.

- Assessment Plan
  - Assessment Tool: Outcome-related lab assignments
  - Assessment Date: Fall 2024
  - Course section(s)/other population: All sections
  - Number students to be assessed: All students
  - How the assessment will be scored: Departmentally-developed rubric

- Standard of success to be used for this assessment: 70% of the students will score 75% or higher
- Who will score and analyze the data: Lead instructor

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2021		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
138	88

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Only students that completed one or more assignments during the semester were evaluated.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

Most of the sections evaluated were Online with one Virtual Mixed Mode (MM). This is what was offered at the time. The MM was at night.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

This outcome was assessed using Assignment 4. The assignment consisted of 12 questions in which the student has to write the command line code based upon what is asked in the question.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
The average percent of students who completed the assignment and scored greater than 75%:

DL D01: 100

DL D02: 95

MM M01: 100

DL DN1: 100

For this outcome, the students easily met the objective criteria for success.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

The data shows the students did very well with this outcome.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Based upon the data, I don't see any area for improvement in this learning outcome. The students did very well.

Outcome 2: Use the Linux/UNIX command line interface (CLI) to accomplish standard tasks.

- Assessment Plan
    - Assessment Tool: Outcome-related lab assignments
    - Assessment Date: Fall 2024
    - Course section(s)/other population: All sections
    - Number students to be assessed: All students
    - How the assessment will be scored: Departmentally-developed rubric
    - Standard of success to be used for this assessment: 70% of the students will score 75% or higher
    - Who will score and analyze the data: Lead instructor

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2021		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
138	88

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Only students that completed one or more assignments during the semester were evaluated.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

Most of the sections evaluated were Online with one Virtual Mixed Mode (MM). This is what was offered at the time. The MM was at night.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

This outcome was assessed using assignments 1-8. The reason for using this many assignments was because most of the class covers general command line interface commands. The assignments consisted of 12 questions in which students have to write the command line code based upon what is asked in the question.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
The average percent of students who got 75% or better on the above listed assignments is as follows (does not include those who didn't complete the assignments): DL D01: 93.57 DL D02: 72 MM M01: 97.14 DL DN1: 92.51

For this outcome, all students met the criteria for success. However, section DL D02 was just above the standard of success.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

The data shows the students did very well with this outcome.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Based upon the data, there are no areas for improvement in this learning outcome. The students did very well.

Outcome 3: Create and modify files with the VI editor.

- Assessment Plan
    - Assessment Tool: Outcome-related lab assignments
    - Assessment Date: Fall 2024
    - Course section(s)/other population: All sections
    - Number students to be assessed: All students
    - How the assessment will be scored: Departmentally-developed rubric
    - Standard of success to be used for this assessment: 70% of the students will score 75% or higher
    - Who will score and analyze the data: Lead instructor

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2021		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
138	88

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Only students that completed one or more assignments during the semester were evaluated.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

Most of the sections evaluated were Online with one Virtual Mixed Mode (MM). This is what was offered at the time. The MM was at night.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

This outcome was assessed using assignment #9. The assignments consisted of 12 questions in which students have to write the command line code based upon what is asked in the question.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

The average percent of students who completed the assignment and scored 75% or better is as follows:

DL D01: 100

DL D02: 100

MM M01: 100

DL DN1: 92

For this outcome the students easily met the objective criteria for success.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

The data shows the students did very well with this outcome.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Based upon the data, I don't see any area for improvement in this learning outcome. The students did very well.

Outcome 4: Create scripts that can be run in the Linux/UNIX system.

- Assessment Plan
    - Assessment Tool: Outcome-related lab assignments
    - Assessment Date: Fall 2024
    - Course section(s)/other population: All sections
    - Number students to be assessed: All students
    - How the assessment will be scored: Departmentally-developed rubric
    - Standard of success to be used for this assessment: 70% of the students will score 75% or higher
    - Who will score and analyze the data: Lead instructor

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2021		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
138	88

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Only students that completed one or more assignments during the semester were evaluated.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

Most of the sections evaluated were Online with one Virtual Mixed Mode (MM). This is what was offered at the time. The MM was at night.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

This outcome was assessed using the final assignment. This assignment required the student to write two bash scripts that demonstrated their understanding of basic programming in a Linux environment.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
The average percent of students who completed this assignment and scored 75% or above is as follows: DL D01: 82 DL D02: 67 MM M01: 91 DL DN1: 86 With the exception of section DL D02, the students easily met the objective criteria for success. The data does not indicate what caused the DL D02 section to have a hard time with this assignment.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

The data shows the students did very well with this outcome.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Based upon the data, all sections except DL D02 did well on this assignment. The data has been reviewed, but it is not clear why there was a problem with this class. Programming concepts can be hard for students to grasp and that may have played a role here. As we progress further with this class, it will be more clear if there is a problem with this outcome or if this was a one-time issue.

III. Course Summary and Intended Changes Based on Assessment Results

1. Based on the previous report's Intended Change(s) identified in Section I above, please discuss how effective the changes were in improving student learning.

There are no indicated changes at this time.

2. Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

Command line skills are very important in the programming industry and this class helps students understand the basics using the Linux operating system, which is widely used today. My surprise is that based upon the data this is a pretty successful course design as most of the sections assessed were online.

3. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

I will share this information at the faculty meeting.

4. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Assessment Tool	Monitor performance on assessment tool for Outcome #4 and update if performance does not improve.	This outcome had the lowest overall performance.	2023
Other: completion of assessment tool	Explore factors contributing to low completion rate outcome-related assignments.	The current assessment had 88/138 students completing the outcome-related assignments.	2023

5. Is there anything that you would like to mention that was not already captured?

6.

III. Attached Files

excel file for data

Faculty/Preparer:	Scott Shaper	**Date:**	06/06/2022
Department Chair:	Scott Shaper	**Date:**	06/07/2022
Dean:	Eva Samulski	**Date:**	06/22/2022
Assessment Committee Chair:	Shawn Deron	**Date:**	10/11/2022

Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Computer Information Systems	121	CIS 121 08/25/2016-Linux/UNIX I: Fundamentals
Division	Department	Faculty Preparer
Business and Computer Technologies	Computer Instruction	Philip Geyer
Date of Last Filed Assessment Report		

I. Assessment Results per Student Learning Outcome

Outcome 1: Create and apply UNIX/Linux command line instructions.

- Assessment Plan
  - Assessment Tool: Final exam
  - Assessment Date: Winter 2015
  - Course section(s)/other population: random sample of 50% of sections
  - Number students to be assessed: All students
  - How the assessment will be scored: Departmentally-developed rubric
  - Standard of success to be used for this assessment: 70% of the students will score 70% or higher on the exam.
  - Who will score and analyze the data: Lead Instructor

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2016		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
60	41

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

High rate of student withdrawals.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All students from all sections who completed the course in Fall 2016. One face-to-face section, one mixed-mode section, and one distance learning section.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

This is a major portion of the course. It involves using a text interface as opposed to using a graphical user interface (typing versus clicking with a mouse). The "power user" must be good at this, but many students struggle with it because it is unfamiliar. The final exam consists of 59 questions, most of which require a short answer fill in. Autograding is used when possible, but manual scoring is required for most questions. Such questions are scored according to a rubric which allows partial credit for partially correct answers.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
31 of the 41 students earned a score of 70% or higher. This results in a success rate of 76%. By section: F2F 12/16 75% MM 10/12 83% DL 13/19 69%

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Some, but not all, students are able to follow and understand the uses of the command line.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

This is an area that needs attention. It is the main cause of our high attrition rate. We need to develop interesting methods of teaching this area. The students have trouble understanding the use and importance of the command line. Exercise improvement will help.

Outcome 2: Install a Linux or UNIX system.

- Assessment Plan
    - Assessment Tool: Checklist of successful installation
    - Assessment Date: Winter 2015
    - Course section(s)/other population: Random sample of 50% of sections
    - Number students to be assessed: All in section
    - How the assessment will be scored: Departmentally-developed rubric
    - Standard of success to be used for this assessment: 70% of the students will score 70% or higher.
    - Who will score and analyze the data: Lead instructor and departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2016		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
60	41

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

High rate of student withdrawals.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All students from all sections who completed the course in Fall 2016. One face-to-face section, one mixed-mode section, and one distance learning section.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Students follow a set of instructions/checklist to install a Linux system on a flash drive from installation files on a DVD. This results in their own system that they can use during the semester. Students who complete the exercise successfully deliver several printouts made from their new system which show they have successfully completed all tasks.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
38 of 41 (or 93% of) students successfully completed the task (installation). Successful completion required 100% of tasks to be completed (students could not hand anything in if they didn't get it working). By section: F2F 15/16 94% MM 12/12 100% DL 11/13 85%

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Most students found this exercise interesting and were able to complete it successfully. Many ended up installing on multiple devices.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Plan to revise this exercise so it uses updated software, and to install a more useful version of Linux.

Outcome 3: Create files with a common UNIX editor.

- Assessment Plan
    - Assessment Tool: Lab assignments
    - Assessment Date: Winter 2015
    - Course section(s)/other population: Random sample of 50% of sections
    - Number students to be assessed: All in sections
    - How the assessment will be scored: Departmentally-developed rubric
    - Standard of success to be used for this assessment: 70% of the students will score 70% or higher.
    - Who will score and analyze the data: Departmental Faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2016		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
60	41

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

High rate of student withdrawals.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All students from all sections who completed the course in Fall 2016. One face-to-face section, one mixed-mode section, and one distance learning section.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Students were required to create and modify files using a vi editor. (The vi editor is a basic text editor that is still widely used in the Linux and UNIX environment. It is not very intuitive.) Students were scored on accuracy and completeness and deductions were made for each error, for incomplete files and for non-existent files.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
7 of the 41 students did not complete the exercise or failed to achieve a score of 70%. (83% success rate.) Some students show a remarkable attention to detail on this exercise where attention to detail is very important. By section: F2F 13/16 81% 91% average score MM 12/12 100% 87% average score DL 9/13 69% 82% average score

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students were successful in learning to use the vi editor, even if they didn't like it.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Exercise needs to be changed to avoid redundancies and improved to increase student interest.

Outcome 4: Configure systems including network interfaces and user creation.

- Assessment Plan
    - Assessment Tool: Final exam
    - Assessment Date: Winter 2015
    - Course section(s)/other population: random sample of 50% of sections
    - Number students to be assessed: All students
    - How the assessment will be scored: Departmentally-developed rubric
    - Standard of success to be used for this assessment: 70% of the students will score 70% or higher on the exam.
    - Who will score and analyze the data: Lead Instructor

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2016		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
60	41

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

High rate of student withdrawals.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All students from all sections who completed the course in Fall 2016. One face-to-face section, one mixed-mode section, and one distance learning section.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

This was not assessed based on the final exam, but rather by lab exercises (correction needs to be made to the assessment plan.) Two separate exercises were used: one for network interface area (11 questions/problems, some with multiple parts), and one for the user creation (16 problems). All require manual scoring. Note: The network interface part of this objective is being moved to one of the Linux Administration courses.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
33 of 41 (81%) students successfully earned 70% or better on the network exercise. By section: F2F 13/16 81% Average: 89% MM 10/12 83% Average 85% DL 10/13 77% Average 87% 29 of 41 (71%) students successfully earned 70% or better on the user creation exercise. By section: F2F 12/16 75% Average: 81% MM 8/12 67% Average 76% DL 9/13 69% Average 72%

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students are able to understand users and permissions. Networking is a greater challenge and much of that material will be moved to a later course.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Configuring a network interface will be moved to the Linux Administration courses. It is too confusing at this level. Improvement in the users/permissions area is needed to make the module more "real world" oriented.

II. Course Summary and Action Plans Based on Assessment Results

1. Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

No real surprises. The course is meeting the needs of the motivated student. It has trouble exciting the unmotivated ones. Two of us are already working on developing changes to the Linux courses.

2. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

At a departmental meeting.

3. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
No changes intended.			

4. Is there anything that you would like to mention that was not already captured?

The Linux/UNIX courses have been under review and we are modifying them to better meet the needs of your students. CIS 121 in particular has been a stumbling block to some students, especially if they are not motivated. We are attempting to find ways that we can better get students engaged while maintaining the integrity of the course.

III. Attached Files

Summary of Data

Faculty/Preparer:	Philip Geyer	**Date:** 08/09/2017
Department Chair:	Philip Geyer	**Date:** 08/09/2017
Dean:	Eva Samulski	**Date:** 08/10/2017

Assessment Committee Chair: Michelle Garey **Date:** 10/30/2017