

**Course Assessment Report
Washtenaw Community College**

Discipline	Course Number	Title
Computer Systems Security	200	CSS 200 06/26/2019- Introduction to Network Security - Security+
Division	Department	Faculty Preparer
Business and Computer Technologies	Computer Science & Information Technology	Cyndi Millns
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: Identify current techniques for securing operating systems and networks.

- Assessment Plan
 - Assessment Tool: Department created final exam - short answer/multiple choice questions
 - Assessment Date: Winter 2017
 - Course section(s)/other population: Random sample of a minimum of two sections of CSS 200 over the three-year period
 - Number students to be assessed: all
 - How the assessment will be scored: answer key

- 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)
	2019	

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

# of students enrolled	# of students assessed
22	12

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.

Ten students withdrew from the course or did not complete the activity.

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.

Only one section of CSS200 ran during Winter 2019. Currently, the only delivery method for this course is online.

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

Although the course indicates that the final exam is the only factor in assessing the course, I used a combination of the final exam and module quizzes (3, 4, 6-12). Both are a combination of multiple choice and short answer questions. The questions from the module quizzes are the same ones used on the final exam. I did this to narrow in on the outcome being assessed. While I considered the final exam in this outcome, each student was tested using a random selection of questions, and this was not consistent across the entire population. There were 491 possible questions on the final exam, and they were not aligned with any particular outcome, something that will need to be done moving forward. The module quizzes were aligned and were a valid assessment of performance.

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: <u>Yes</u>
Data from nine module quizzes (3, 4, 6-12) and the final exam were analyzed. The average score was 91% with 85% of students achieving a 70% or better.

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

Students performed well on this outcome. The scores on the individual module quizzes were slightly higher overall than the final exam. This could be due to the cumulative nature and higher-stakes testing stressors that occur with final exams.
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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.

Moving forward, I will be more deliberate in the choice of questions on the final exam so that each question aligns with an outcome.
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Outcome 2: Test systems and identify basic vulnerabilities.

- Assessment Plan
 - Assessment Tool: Laboratory reports
 - Assessment Date: Winter 2017
 - Course section(s)/other population: Random sample of a minimum of two sections of CSS 200 over the three-year period
 - Number students to be assessed: all
 - 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)
	2019	

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

# of students enrolled	# of students assessed
22	12

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.

Ten students withdrew from the course or did not complete the activity.

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.

Only one section of CSS200 ran during Winter 2019. Currently, the only delivery method for this course is online.

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

Virtual labs that allowed students to test systems and identify basic vulnerabilities were used to assess this learning outcome. The labs were administered using the Cengage MindTap platform and addressed the identification of Network Vulnerabilities, managing local and virtual storage, digital forensics and various protocols and services that are susceptible to attack. Students were scored based on the completion of the steps in the lab along with multiple choice questions related to the lab.

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
Data from five virtual labs were analyzed. The average score was 92% with 90% of students achieving a 70% or better.

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

Students performed well on this outcome. VM Lab 7-2 (Protocols and Services) gave them the most trouble; however, the results were still in line with the success standard of 70% of students obtaining higher than 70%.

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.

I would like to add a cumulative final lab to the course that also tests this outcome.

Outcome 3: Identify legal, privacy and ethical issues regarding computer usage.

- Assessment Plan
 - Assessment Tool: Department created final exam - short answer/multiple choice questions
 - Assessment Date: Winter 2017
 - Course section(s)/other population: Random sample of a minimum of two sections of CSS 200 over the three-year period
 - Number students to be assessed: all
 - How the assessment will be scored: answer key
 - 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)
	2019	

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

# of students enrolled	# of students assessed
22	12

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.

Ten students withdrew from the course or did not complete the activity.

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.

Only one section of CSS200 ran during Winter 2019. Currently, the only delivery method for this course is online.

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

Although the course indicates that the final exam be the only factor in assessing this outcome, I used a combination of the final exam and module quizzes (1-2, 5, 8, 10, 13-15). Both are a combination of multiple choice and short answer questions. The questions from the module quizzes are the same ones used on the final exam. I did this to narrow in on the outcome being assessed. While I considered the final exam in this outcome, each student was tested using a random selection of questions, and this was not consistent across the entire population. There were 491 possible questions on the final exam, and they were not aligned with any particular outcome, something that will need to be done moving forward. The module quizzes were aligned and were a valid assessment of performance.

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

Data from nine module quizzes (1-2, 5, 8, 10, 13-15) and the final exam were analyzed. The average score was 92% with 90% of students achieving a 70% or better.

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

Students performed well on this outcome. The scores on the individual module quizzes were slightly higher overall than the final exam. This could be due to the cumulative nature and higher-stakes testing stressors that occur with final exams.

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.

Moving forward, I will be more deliberate in the choice of questions on the final exam so that each question aligns with an outcome.

Outcome 4: Set up basic intrusion detection systems.

- Assessment Plan
 - Assessment Tool: Laboratory reports

- Assessment Date: Winter 2017
- Course section(s)/other population: Random sample of a minimum of two sections of CSS 200 over the three-year period
- Number students to be assessed: all
- 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)
	2019	

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

# of students enrolled	# of students assessed
22	12

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.

Ten students withdrew from the course or did not complete the activity.

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.

Only one section of CSS200 ran during Winter 2019. Currently, the only delivery method for this course is online.

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

Virtual labs that allowed students to test systems and identify basic vulnerabilities were used to assess this learning outcome. The labs were administered using the Cengage MindTap platform and addressed the identification of Network Vulnerabilities, managing local and virtual storage, digital forensics and various protocols and services that are susceptible to attack. Students were scored based on the completion of the steps in the lab along with multiple choice questions related to the lab.

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

Data from eleven virtual labs were analyzed. The average score was 88% with 80% of students achieving a 70% or better.

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

Students performed well on this outcome overall; however, some had difficulty with Implementing RAID and Managing Certificates (two aspects of setting up intrusion detection systems).

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.

I would like to add a cumulative final lab to the course that also tests this outcome. In addition, I would like to see students increase their scores on labs related to RAID and Managing Certificates.

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 was no previous assessment report.

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?

I only assessed Winter 2019 as there was an issue with this course when I took it over in Fall 2018. The edition of the textbook posted to the course schedule was not the edition for which the course was set up. I had to create a temporary alignment with the modules and then updated the class for Winter 2019 semester. The course outcomes align with the CompTIA Security+ certification which is the foundational industry certification in cybersecurity.

The MindTap Virtual Labs were new as of Winter 2019. In the past, students completed all labs in the NetLab platform, which does not allow instructors to view and analyze the performance within the lab environment (MindTap Virtual

Labs do). For Winter and Spring 2019, I used a combination of MindTap Labs and NetLabs in the course; however, I did not utilize the NetLabs in this final assessment due to the inability to accurately analyze the students' work in NetLabs.

I am concerned about the pace and lack of face to face contact in this course. Students are withdrawing from the course or just not finishing it due to this. I had 22 students at the beginning of the term and only 12 completed the course. I plan to offer a blended section along with an online only section and increase the length of the course to 12 or 15 weeks.

I am also looking at moving all labs to MindTap instead of using a blend of NetLabs and MindTap.

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

This information was shared at department meetings during Winter 2019 and will be addressed when we discuss scheduling for Winter 2020 this fall.

- 4.

Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Outcome Language	Revise current outcomes and add new outcomes.	The outcomes need to reflect the material taught and assessed in the course and should be directly tied to the industry certification exam related to this course.	2019
Assessment Tool	Add multiple-choice final exam and capstone labs as the assessment tools for all outcomes.	This more accurately assesses student achievement of each outcome to reflect the industry certification exam related to this course.	2019

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

6.

III. Attached Files

[CSS 200 Outcomes and Assessments Data](#)

Faculty/Preparer: Cyndi Millns **Date:** 07/22/2019

Department Chair: Philip Geyer **Date:** 07/22/2019

Dean: Eva Samulski **Date:** 07/22/2019

Assessment Committee Chair: Shawn Deron **Date:** 11/08/2019