

**Course Assessment Report
Washtenaw Community College**

Discipline	Course Number	Title
Computer Networking Technology	206	CNT 206 05/15/2019- Internetworking I - Fundamentals
Division	Department	Faculty Preparer
Business and Computer Technologies	Computer Science & Information Technology	John Trame
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 all layers and functions of the OSI model.

- Assessment Plan
 - Assessment Tool: A departmental final exam will be used to assess understanding of key concepts.
 - Assessment Date: Fall 2006
 - Course section(s)/other population: All
 - Number students to be assessed: ~12 ~24 per semester
 - How the assessment will be scored:
 - Standard of success to be used for this assessment:

- Who will score and analyze the data:

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
61	42

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.

All students in all four sections of this class who completed the Cisco online final exam were included in this assessment.

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 in all four sections of this class who completed the Cisco online final exam were included in this assessment.

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

The final exam is written, administered, and graded online, by Cisco Systems Inc.

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

A total of 31 questions addressed this outcome.

30 of 42 students scored 70% or better on this set of questions. This can be found on the "Network Basics" sheet of the spreadsheet.

This is a success rate of 71.43%.

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

The students met the success criteria for 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.

We will continue to examine possible modifications to reach the ultimate goal of 100% success.

Outcome 2: Demonstrate how to connect a computer to the Internet and Local Area Networks.

- Assessment Plan
 - Assessment Tool: A departmental task list will be used to assess proficiency in applying the concepts and in performing hands-on tasks.
 - Assessment Date: Fall 2006
 - Course section(s)/other population: All
 - Number students to be assessed: ~12 ~24 per semester
 - How the assessment will be scored:
 - Standard of success to be used for this assessment:
 - Who will score and analyze the data:

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
61	42

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.

All students in all four sections of this class who completed the Cisco online final exam were included in this assessment.

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 in all four sections of this class who completed the Cisco online final exam were included in this assessment.

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

The final exam is written, administered, and graded online, by Cisco Systems Inc.

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: No

A total of 3 questions addressed this outcome.

23 of 42 students scored 70% or better on this set of questions.

This is a success rate of 54.76%.

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

The students met the success criteria for 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.

More questions related to this outcome could provide greater insight into the students' abilities related to this outcome.

Outcome 3: Calculate binary, hexadecimal and decimal numbering system conversions.

- Assessment Plan
 - Assessment Tool:

- Assessment Date: Fall 2006
- Course section(s)/other population: All
- Number students to be assessed: ~12 ~24 per semester
- How the assessment will be scored:
- Standard of success to be used for this assessment:
- Who will score and analyze the data:

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
61	42

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.

All students in all four sections of this class who completed the Cisco online final exam were included in this assessment.

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 in all four sections of this class who completed the Cisco online final exam were included in this assessment.

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

The final exam is written, administered, and graded online, by Cisco Systems Inc.

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

A total of 11 or 14 questions addressed this outcome, depending on which version of the test a student received.

30 of 42 students scored 70% or better on this set of questions.

This is a success rate of 71.43%.

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

The students met the success criteria for 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.

We will continue to examine possible modifications to reach the ultimate goal of 100% success. More assignments may help improve student performance on this outcome.

Outcome 4: Identify networking terminology, bandwidth and networking models.

- Assessment Plan
 - Assessment Tool:
 - Assessment Date: Fall 2006
 - Course section(s)/other population: All
 - Number students to be assessed: ~12 ~24 per semester
 - How the assessment will be scored:
 - Standard of success to be used for this assessment:
 - Who will score and analyze the data:

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
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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.

All students in all four sections of this class who completed the Cisco online final exam were included in this assessment.

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 in all four sections of this class who completed the Cisco online final exam were included in this assessment.

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

The final exam is written, administered, and graded online, by Cisco Systems Inc.

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

A total of 5 questions addressed this outcome.

31 of 42 students scored 70% or better on this set of questions.

This is a success rate of 73.81%.

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

The students met the success criteria for 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.

We will continue to examine possible modifications to reach the ultimate goal of 100% success.

Outcome 5: Identify copper, optical and wireless mediums and the relationship between signals and noise.

- Assessment Plan
 - Assessment Tool:
 - Assessment Date: Fall 2006
 - Course section(s)/other population: All
 - Number students to be assessed: ~12 ~24 per semester
 - How the assessment will be scored:
 - Standard of success to be used for this assessment:
 - Who will score and analyze the data:

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
61	42

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.

All students in all four sections of this class who completed the Cisco online final exam were included in this assessment.

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 in all four sections of this class who completed the Cisco online final exam were included in this assessment.

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

The final exam is written, administered, and graded online by Cisco Systems Inc.

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
 A total of 31 questions addressed this outcome.
 30 of 42 students scored 70% or better on this set of questions.
 This is a success rate of 71.43%.

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

The students met the success criteria for 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.

We will continue to examine possible modifications to reach the ultimate goal of 100% success.

Outcome 6: Demonstrate how to cable a Local Area Network.

- Assessment Plan
 - Assessment Tool:
 - Assessment Date: Fall 2006
 - Course section(s)/other population: All
 - Number students to be assessed: ~12 ~24 per semester
 - How the assessment will be scored:
 - Standard of success to be used for this assessment:
 - Who will score and analyze the data:

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
61	42

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.

All students in all four sections of this class who completed the Cisco online final exam were included in this assessment.

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 in all four sections of this class who completed the Cisco online final exam were included in this assessment.

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

A hands-on skills based final exam was used to measure the success of this outcome.

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

All 42 students demonstrated the ability to connect appropriate cables between devices.

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

The students met the success criteria for 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.

We will continue to examine possible modifications to reach the ultimate goal of 100% success.

Outcome 7: Identify networking fundamentals and operations to include broadcast domains and collision domains.

- Assessment Plan
 - Assessment Tool:
 - Assessment Date: Fall 2006
 - Course section(s)/other population: All
 - Number students to be assessed: ~12 ~24 per semester
 - How the assessment will be scored:
 - Standard of success to be used for this assessment:
 - Who will score and analyze the data:

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
61	42

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.

All students in all four sections of this class who completed the Cisco online final exam were included in this assessment.

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 in all four sections of this class who completed the Cisco online final exam were included in this assessment.

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

The final exam is written, administered, and graded online, by Cisco Systems Inc.

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
 A total of 31 questions addressed this outcome.
 30 of 42 students scored 70% or better on this set of questions.
 This is a success rate of 71.43%.

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

The students met the success criteria for 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.

We will continue to examine possible modifications to reach the ultimate goal of 100% success. Greater insight into which specific terms need further explanation would require much more analysis of each specific question.

Outcome 8: Demonstrate TCP and IP address relationships, to include subnetting.

- Assessment Plan
 - Assessment Tool:
 - Assessment Date: Fall 2006
 - Course section(s)/other population: All
 - Number students to be assessed: ~12 ~24 per semester
 - How the assessment will be scored:
 - Standard of success to be used for this assessment:
 - Who will score and analyze the data:

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
61	42

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.

All students in all four sections of this class who completed the Cisco online final exam were included in this assessment.

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 in all four sections of this class who completed the Cisco online final exam were included in this assessment.

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

The final exam is written, administered, and graded online by Cisco Systems Inc.

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
A total of 14 questions addressed this outcome.
30 of 42 students scored 70% or better on this set of questions.
This is a success rate of 71.43%.

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

The students met the success criteria for 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.

We will continue to examine possible modifications to reach the ultimate goal of 100% success. More homework and in-class assignments could help improve student performance.

Outcome 9: Identify the differences between routed and routing protocols.

- Assessment Plan
 - Assessment Tool:
 - Assessment Date: Fall 2006
 - Course section(s)/other population: All
 - Number students to be assessed: ~12 ~24
 - How the assessment will be scored:
 - Standard of success to be used for this assessment:
 - Who will score and analyze the data:

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
61	42

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.

All students in all four sections of this class who completed the Cisco online final exam were included in this assessment.

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 in all four sections of this class who completed the Cisco online final exam were included in this assessment.

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

The final exam is written, administered, and graded online, by Cisco Systems Inc.

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: No

A total of 3 questions addressed this outcome.

19 of 42 students scored 70% or better on this set of questions.

This is a success rate of 45.24%.

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

The students met the success criteria for 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.

We will continue to examine possible modifications to reach the ultimate goal of 100% success. More questions related to this outcome could provide better insight into student success with this outcome. Three questions do not provide enough data to analyze.

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.

I did not see a previous 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?

The overall results of the Final Concepts Exam were:

33 of 42 students scored 70% or better on the final exam.

The success rate was 78.57%

Overall, this course is meeting its intended goal.

There were no surprises in these results.

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

This information will be shared with the department in a department meeting.

4. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Assessment Tool	Add outcome-specific questions to assessment tools.	More questions pertaining to the identified outcomes would improve the quantity of data collected, which could provide more significant analysis of student performance.	2020
Course Assignments	Add more practice/assignments related to all outcomes, and especially related to number systems, IP Addressing and cabling (which seem to need the most improvement).	Additional practice with these concepts will improve student performance.	2020

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

6.

III. Attached Files

[CNT206-Assessment-W2019-v2](#)

Faculty/Preparer: John Trame **Date:** 05/30/2019
Department Chair: Philip Geyer **Date:** 06/04/2019
Dean: Eva Samulski **Date:** 06/05/2019
Assessment Committee Chair: Shawn Deron **Date:** 09/10/2019

Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Computer Networking Technology	206	CNT 206 11/21/2016-Introduction to Networks
Division	Department	Faculty Preparer
Business and Computer Technologies	Computer Instruction	James Lewis
Date of Last Filed Assessment Report		

I. Assessment Results per Student Learning Outcome

Outcome 1: Identify the devices and services used to support communications in data networks and the Internet

- Assessment Plan
 - Assessment Tool: Online multiple choice final exam written by Cisco Systems
 - Assessment Date: Fall 2016
 - Course section(s)/other population: All sections
 - Number students to be assessed: All students
 - How the assessment will be scored: External evaluation
 - Standard of success to be used for this assessment: At least 70% of the students will score 70% or better on the final exam.
 - Who will score and analyze the data: The exam will be automatically graded by the Cisco Networking Academy server. The results will be analyzed by our full-time 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
34	19

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.

Full class, 19 students, full assessment of students in my course only. For next assessment, arrangements will be made to collect data from both sections.

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.

This section is F2F students, 100% of class.

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

Used Cisco designed questions that I selected from pool. Students were presented with various devices and were required to identify their role. Answer key was used to score the test questions.

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

All students correctly answered the five outcome related questions. This exceeded the standard of success established for this outcome.

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

Students did very well against this outcome. This is a very basic concept so expectation was that all would meet objective.

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.

To improve this objective, it should be revised to reflect a more challenging perception of networking. Reinstate a more focused and comprehensive objective that demonstrates actual student skills as opposed to student recalling terms and concepts.

Outcome 2: Recognize the role of protocol layers in data networks

- Assessment Plan
 - Assessment Tool: Online multiple choice final exam written by Cisco Systems
 - Assessment Date: Fall 2016
 - Course section(s)/other population: All sections
 - Number students to be assessed: All students
 - How the assessment will be scored: External evaluation
 - Standard of success to be used for this assessment: At least 70% of the students will score 70% or better on the final exam.
 - Who will score and analyze the data: The exam will be automatically graded by the Cisco Networking Academy server. The results will be analyzed by our full-time 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
34	19

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.

Full class, 19 students, full assessment of students in my course only. For next assessment, arrangements will be made to collect data from both sections.

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.

This section is F2F students, 100% of class.

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

Used Cisco designed questions that I selected from pool. Students were presented with various devices and were required to identify their role. Answer key was used to score the test questions.

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: No

5% of the students (1) scored 70% or higher on the outcome related questions. This does not meet the standard of success established for this outcome.

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

Students who did not have a traditional prerequisite course material all failed this objective significantly. Other students who had prerequisite course material did better, however, did not meet objectives. We spent an increased amount of time with remedial concepts that the course flow was sluggish.

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.

Reinstate CST 225 and the course pre-assessment test that we used to provide before this course was revised to accommodate online student population. See student comments in attached file.

Outcome 3: Recognize addressing and naming schemes at various layers of data networks in IPv4 and IPv6 environments.

- Assessment Plan
 - Assessment Tool: Online multiple choice final exam written by Cisco Systems
 - Assessment Date: Fall 2016
 - Course section(s)/other population: All sections
 - Number students to be assessed: All students
 - How the assessment will be scored: External evaluation

- Standard of success to be used for this assessment: At least 70% of the students will score 70% or better on the final exam.
- Who will score and analyze the data: The exam will be automatically graded by the Cisco Networking Academy server. The results will be analyzed by our full-time 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
34	19

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.

Full assessment 19/19.

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.

F2F

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

The outcome was not assessed. The outcome needs to be rewritten.

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: No
 Could not assess.

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

Did not assess.

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.

Remove this outcome and replace with something more focused on in-depth comprehension of networking concepts.

Outcome 4: Design, calculate, and apply subnet masks and addresses to fulfill given requirements in IPv4 and IPv6 networks.

- Assessment Plan
 - Assessment Tool: Skills based assessment test
 - Assessment Date: Fall 2016
 - 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 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
34	19

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.

Full assessment of my section only. Arrangements will be made in the future to acquire data from all sections.

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.

This section was F2F.

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

Provided subnet mask information and address class and students had to determine address range, first and last host address, and broadcast address based on this information. Scored in-class assignment.

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: No

7/19 students (36.8%) correctly answered these outcome related questions. Students could answer either correctly or incorrectly all three questions. Therefore the results is the standards of success was actually 70% of the students would score 100%. This standard was not met.

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

Student success was distributed and not even across students. A significant amount of time was spent in remedial concepts of numbering systems, IP addressing and subnetting. More time was spent on understanding IP addressing and numbering systems in this class, than any previous class I have taught in this 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.

Reinstate CST 225 and the course pretest we used to administer before this course was reconstructed to accommodate online population.

Outcome 4: Design, calculate, and apply subnet masks and addresses to fulfill given requirements in IPv4 and IPv6 networks.

- Assessment Plan

- Assessment Tool: Online multiple choice final exam written by Cisco Systems
- Assessment Date: Fall 2016
- Course section(s)/other population: All sections
- Number students to be assessed: All students
- How the assessment will be scored: External evaluation
- Standard of success to be used for this assessment: At least 70% of the students will score 70% or better on the final exam.
- Who will score and analyze the data: The exam will be automatically graded by the Cisco Networking Academy server. The results will be analyzed by our full-time 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
34	19

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.

Full assessment 19/19. This outcome was not assessed with this tool.

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.

F2F

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

The outcome was not assessed using this tool. The outcome needs to be rewritten.

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>No</u>
Could not assess.

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

Student success was distributed and not even across students. A significant amount of time was spent in remedial concepts of numbering systems, IP addressing and subnetting. More time was spent on understanding IP addressing and numbering systems in this class, than any previous class I have taught in this 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.

Reinstate CST 225 and the course pretest we used to administer before this course was reconstructed to accommodate online population.

Outcome 5: Identify and recognize fundamental Ethernet concepts, such as media, services, and operations.

- Assessment Plan
 - Assessment Tool: Online multiple choice final exam written by Cisco Systems
 - Assessment Date: Fall 2016
 - Course section(s)/other population: All sections
 - Number students to be assessed: All students
 - How the assessment will be scored: External evaluation
 - Standard of success to be used for this assessment: At least 70% of the students will score 70% or better on the final exam.
 - Who will score and analyze the data: The exam will be automatically graded by the Cisco Networking Academy server. The results will be analyzed by our full-time 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)
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2016		
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2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
34	19

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.

All students in my section were assessed. In the future, data from all sections will be acquired.

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.

This section was F2F.

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

Written exam based on Cisco test questions.

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

17/19 were successful (89.4%). Students were required to answer all questions correctly in order to get credit.

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

The outcomes for this objective are basic and it is expected that all students should be successful.

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.

Reinstate a more focused and comprehensive objective that demonstrates actual student skills as opposed to student recalling terms and concepts.

Outcome 6: Build a simple Ethernet network using routers and switches.

- Assessment Plan
 - Assessment Tool: Skills based assessment test
 - Assessment Date: Fall 2016
 - 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 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
34	19

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.

I assessed my section of this course. 19 of 19 students. In the future, data from all sections will be acquired.

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.

My section is F2F.

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

This was a hands-on project in class. Scored as pass/fail (network must be fully functional to pass).

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>
17/19 were successful (89.4%). This meets 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.

Students performed typically for a F2F class in this material. Strength in this objective was demonstrated by repetition of hands-on building and configuration of networks.
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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.

Plans are to maintain the required hands-on exercises for this objective.

Outcome 6: Build a simple Ethernet network using routers and switches.

- Assessment Plan
 - Assessment Tool: Online multiple choice final exam written by Cisco Systems
 - Assessment Date: Fall 2016
 - Course section(s)/other population: All students
 - Number students to be assessed: All students
 - How the assessment will be scored: External evaluation
 - Standard of success to be used for this assessment: At least 70% of the students will score 70% or better on the final exam.
 - Who will score and analyze the data: The exam will be automatically graded by the Cisco Networking Academy server. The results will be analyzed by our full-time 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
34	19

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.

Full assessment 19/19. This outcome was not assessed with this tool.

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.

F2F

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

The outcome was not assessed using this tool. The outcome needs to be rewritten.

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: No
Could not assess.

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

Students performed typically for a F2F class in this material. Strength in this objective was demonstrated by repetition of hands-on building and configuration of networks.

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.

Plans are to maintain the required hands-on exercises for this objective.

Outcome 7: Use Cisco command-line interface (CLI) commands to perform basic router and switch configurations.

- Assessment Plan
 - Assessment Tool: Skills based assessment test
 - Assessment Date: Fall 2016
 - 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 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
34	19

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.

Full class, 19 students, full assessment of students in my course only. For next assessment, arrangements will be made to collect data from both sections.

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.

This section is F2F students, 100% of class.

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

Used Cisco designed questions that I selected from pool. Students were presented with various devices and were required to identify their role. Answer key was used to score the test questions.

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>
All students correctly answered the five outcome related questions. This exceeded the standard of success established for this outcome.

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

Strength in this objective was demonstrated by repetition of using the command line in hands-on exercises.
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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.

Plans are to maintain the required hands-on exercises for this objective.

Outcome 7: Use Cisco command-line interface (CLI) commands to perform basic router and switch configurations.

- Assessment Plan
 - Assessment Tool: Online multiple choice final exam written by Cisco Systems.
 - Assessment Date: Fall 2016
 - Course section(s)/other population: All sections
 - Number students to be assessed: All students
 - How the assessment will be scored: External evaluation
 - Standard of success to be used for this assessment: At least 70% of the students will score 70% or better on the final exam.
 - Who will score and analyze the data: The exam will be automatically graded by the Cisco Networking Academy server. The results will be analyzed by our full-time 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)
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2016		
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2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
34	19

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.

Full assessment 19/19. This outcome was not assessed with this tool.

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.

F2F

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

The outcome was not assessed using this tool. The outcome needs to be rewritten.

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: No
 Could not assess.

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

Strength in this objective was demonstrated by repetition of using the command line in hands-on exercises.

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.

Plans are to maintain the required hands-on exercises for this objective.

Outcome 8: Utilize common network utilities to verify small network operations and analyze data traffic.

- Assessment Plan
 - Assessment Tool: Skills based assessment test
 - Assessment Date: Fall 2016
 - 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 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
34	19

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.

I assessed my section only. Full class, 19 of 19 students. In the future, data from all sections will be included in the assessment.

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.

This section is F2F.

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

Used common network monitoring tools in a live environment including Wireshark, Putty, nslookup, traceroute and ping.

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>
19/19 were successful. 100% of the students met 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.

Students performed typically for a F2F class in this material. Strength in this objective was demonstrated by repetition of hands-on monitoring and configuration of networks.
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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.

Plans are to maintain the required hands-on exercises for this objective.

Outcome 8: Utilize common network utilities to verify small network operations and analyze data traffic.

- Assessment Plan
 - Assessment Tool: Online multiple choice final exam written by Cisco Systems
 - Assessment Date: Fall 2016
 - Course section(s)/other population: All sections
 - Number students to be assessed: All students
 - How the assessment will be scored: External evaluation
 - Standard of success to be used for this assessment: At least 70% of the students will score 70% or better on the final exam.
 - Who will score and analyze the data: The exam will be automatically graded by the Cisco Networking Academy server. The results will be analyzed by our full-time 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
34	19

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.

Full assessment 19/19. This outcome was not assessed with this tool.

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.

F2F

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

The outcome was not assessed using this tool. The outcome needs to be rewritten.

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: No
Could not assess.

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

Students performed typically for a F2F class in this material. Strength in this objective was demonstrated by repetition of hands-on monitoring and configuration of networks.

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.

Plans are to maintain the required hands-on exercises for this objective.

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?

Students that had prerequisite skills performed typically against previous students in this same course. Since the prerequisites have been removed from this course, students who did not complete the prerequisite courses or have relevant experience are not performing well.

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

This information has been presented in department discussions.

3. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Outcome Language	Revise outcome language for the outcomes that could not be assessed.	Outcome language needs to be measurable and reflect the key areas of the course.	2018
Pre-requisite	Reinstate CST 225 and the course pre-assessment test.	CST 225 was removed as a prerequisite to accommodate the online student population. The assessment results support the conclusion that students who did not have CST 225 as a prerequisite were less successful than those who did have the prerequisite. This was further supported by a survey of students attached to the report.	2018

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

All students that did not have the traditional prerequisite course material (CST 225 or industry experience) failed the final exam.

III. Attached Files

[OSI Model Options](#)
[OSI Model Template](#)
[Student Comments](#)

Faculty/Preparer:	James Lewis	Date: 01/18/2017
Department Chair:	Philip Geyer	Date: 02/27/2017
Dean:	Kimberly Hurns	Date: 03/03/2017
Assessment Committee Chair:	Ruth Walsh	Date: 03/26/2017