

**Course Assessment Report**  
**Washtenaw Community College**

Discipline	Course Number	Title
Computer Networking Technology	236	CNT 236 06/20/2017- Internetworking IV - WANs
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: Scale IP addresses to make more efficient use of the current IP v4 address space

- Assessment Plan
  - Assessment Tool: A departmental Skills-Based Final Exam, with a task list will be used to assess proficiency in applying the concepts and in performing hands-on tasks.
  - Assessment Date: Winter 2015
  - Course section(s)/other population: All
  - Number students to be assessed: All
  - How the assessment will be scored: Answer Key or departmentally-developed rubric.
  - Standard of success to be used for this assessment: 75% 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)
	2017	

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

# of students enrolled	# of students assessed
7	7

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 were assessed.

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.

One section was offered this term. This course was F2F for Winter 2017.

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

Students configured dynamic and static NAT, router port address translation and efficient IP address scaling for a large enterprise WAN.

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

Students performed predefined exercises (5.2.2.6 and 5.2.3.7) and addressed an entire enterprise network where addressing efficiency was required. 90.4% success was demonstrated.

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

Student strength with this outcome is based on repetition of performance and application of IP addressing skills to varying network topologies.

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.

Continuous improvement is integrated into this SLO by extensive exposure to network addressing requirements.

Outcome 2: Differentiate between LAN and WAN technologies.

- Assessment Plan

- Assessment Tool: A Cisco Systems prepared and graded multiple-choice Final Exam will be used to assess proficiency with these concepts.
- Assessment Date: Winter 2015
- Course section(s)/other population: All
- Number students to be assessed: All
- How the assessment will be scored: Answer key and Departmentally-developed rubric
- Standard of success to be used for this assessment: 75% 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)
	2017	

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

# of students enrolled	# of students assessed
7	7

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 were assessed.

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.

The assessment for this SLO was F2F.

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

Students completed Cisco networking academy exercise 2.2.4.3 (Researching WAN technologies) and 6.2.4.2, (Researching Broadband Internet Technologies).

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 were successful in completing these two exercises.

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

Students' ability to distinguish between LAN and WAN technologies is fundamental and an integral part of this skill requirement.
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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.

All students met the standard of success.
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Outcome 3: Configure PPP on a WAN link.

- Assessment Plan
  - Assessment Tool: A departmental Skills-Based Final Exam, with a task list will be used to assess proficiency in applying the concepts and in performing hands-on tasks.
  - Assessment Date: Winter 2015
  - Course section(s)/other population: All
  - Number students to be assessed: All
  - How the assessment will be scored: Answer key and departmentally-developed rubric
  - Standard of success to be used for this assessment: 75% 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)
	2017	

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

# of students enrolled	# of students assessed
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7	7
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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 were assessed.

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 course was taught in F2F mode.

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

Students configured PPP with authentication and performed troubleshooting of PPP with authentication with a Pass/Fail criteria.

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 were successful.

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

Areas of strength for this outcome are demonstrated by the students' repeated ability to configure Point-to-Point Protocol (PPP) in varying environments.

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.

Improvement can be attained with more exposure to tasks of varying complexity.

Outcome 4: Identify and configure the components of a Frame Relay network.

- Assessment Plan

- Assessment Tool: A departmental Skills-Based Final Exam, with a task list will be used to assess proficiency in applying the concepts and in performing hands-on tasks.
- Assessment Date: Winter 2015
- Course section(s)/other population: All
- Number students to be assessed: All
- How the assessment will be scored: Answer key and departmentally-developed rubric
- Standard of success to be used for this assessment: 75% 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)
	2017	

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

# of students enrolled	# of students assessed
7	7

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 enrolled students were assessed for this term.

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 course was taught in F2F mode.

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

Students configured and troubleshot Frame-Relay and sub Interface configurations in accordance with Cisco exercise criteria 4.2.2.7 and 4.3.1.6, and configured an instructor-generated WAN topology that included Frame-Relay as an interface standard.

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 successfully passed a comprehensive assessment consisting of Cisco-generated outcome-related questions.

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

Student strength in this outcome is demonstrated by successful completion of a multiple question assessment and configuration and troubleshooting of a Frame-Relay network.

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.

All students were successful in demonstrating skill for this outcome. Continuous improvement is integrated into the final project that requires students to demonstrate proficiency.

Outcome 5: Identify correct statements pertaining to SNMP and the management model.

- Assessment Plan
  - Assessment Tool: A Cisco Systems prepared and graded multiple-choice Final Exam will be used to assess proficiency with these concepts.
  - Assessment Date: Winter 2015
  - Course section(s)/other population: All
  - Number students to be assessed: All
  - How the assessment will be scored: Answer key and departmentally-developed rubric
  - Standard of success to be used for this assessment: 75% 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)
	2017	

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

# of students enrolled	# of students assessed
7	7

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 enrolled this term (Winter 2017) were assessed.

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 course was taught in F2F mode.

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

Students configured syslog, ntp, SNMP protocols and services, and researched networking monitoring software in accordance with exercises 8.1.2.6, 8.2.1.8, 8.2.2.4, 8.3.3.3.

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 standard of success was met. 100% of the students were successful performing these tasks.

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

Students demonstrated understanding of basic network maintenance protocol configuration.

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.



Students should have more exposure to network monitoring tools and techniques.

## 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?

This course is a capstone for the industry-critical skills needed in Cisco networking. The current delivery tools, techniques, methods and exercises demonstrated all assessed students are proficient.

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

The results of this assessment will be presented in a Fall 2017 department 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?

5.

## III. Attached Files

[CNT 236 SLO Assessment Tally](#)

**Faculty/Preparer:** James Lewis **Date:** 06/22/2017

**Department Chair:** Philip Geyer **Date:** 06/22/2017

**Dean:** Kristin Good **Date:** 06/26/2017

**Assessment Committee Chair:** Michelle Garey **Date:** 09/28/2017

**COURSE ASSESSMENT REPORT**

**I. Background Information**

1. Course assessed:  
 Course Discipline Code and Number: CNT236  
 Course Title: Internetworking IV: WANs  
 Division/Department Codes: BCT/ELED
  
2. Semester assessment was conducted (check one):  
 Fall 20\_\_  
 Winter 2009\_\_  
 Spring/Summer 20\_\_
  
3. Assessment tool(s) used: check all that apply.  
 Portfolio  
 Standardized test  
 Other external certification/licensure exam (specify):  
 Survey  
 Prompt  
 Departmental exam  
 Capstone experience (specify): Skills-Based Final Exam  
 Other (specify):
  
4. Have these tools been used before?  
 Yes  
 No

If yes, have the tools been altered since its last administration? If so, briefly describe changes made.  
 No

5. Indicate the number of students assessed/total number of students enrolled in the course.  
 15/15
  
6. Describe how students were selected for the assessment.  
 All students completing the class were selected for the assessment.

**II. Results**

1. Briefly describe the changes that were implemented in the course as a result of the previous assessment.  
 This is the first assessment.
  
2. List each outcome that was assessed for this report exactly as it is stated on the course master syllabus.
  - Scaling IP addresses, to make more efficient use of the current IPv4 address space.
  - Differentiate between LAN and WAN technologies.
  - Configure PPP on a WAN link.
  - Identify statements with the ISDN standards used for addressing, concepts and signaling; also configure an ISDN BRI interface.
  - Identify the components of a Frame Relay network, and configure Frame Relay.
  - Identify correct statements pertaining to SNMP, the OSI and management model.
  
3. Briefly describe assessment results based on data collected during the course assessment, demonstrating the extent to which students are achieving each of the learning outcomes listed above. *Please attach a summary of the data collected.*  
 Over 75% of the students successfully achieved outcomes 1 and 3, and the configuration portion of outcome 5. Unfortunately, Cisco Systems changed their policy regarding access to final exam results. This year they rewrote the final exam to closely resemble the official CCNA certification exam, so they no longer permit instructors to review student responses to the questions on the exam, which means that the instructor was unable

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to use the questions from the final exam to assess student achievement of outcomes 2, 4, 6, and part of outcome 5. However, Cisco still permits instructor access to student answers for individual chapter tests.

4. For each outcome assessed, indicate the standard of success used, and the percentage of students who achieved that level of success. *Please attach the rubric/scoring guide used for the assessment.*  
Outcome 1 and 3 were successfully achieved by 100% of the students.  
The second half of outcome 5 (configure Frame Relay) was successfully achieved by 86.67% of the students.
5. Describe the areas of strength and weakness in students' achievement of the learning outcomes shown in assessment results.

Strengths: Students can successfully scale IP addresses, configure PPP and Frame Relay.

Weaknesses: Student weaknesses could not be identified, because the instructor could not gain access to the test results for the Cisco final exam.

**III. Changes influenced by assessment results**

1. If weaknesses were found (see above) or students did not meet expectations, describe the action that will be taken to address these weaknesses.

The weakness discovered through this assessment process was with the assessment tool, actually the lack of access to the intended tool. Since the instructors are no longer able to get access to student answers on the Cisco final exam, we will write a departmental assessment tool to assess student academic achievement.

2. Identify intended changes that will be instituted based on results of this assessment activity (check all that apply). Please describe changes and give rationale for change.

a.  Outcomes/Assessments on the Master Syllabus  
Change/rationale:

b.  Objectives/Evaluation on the Master Syllabus  
Change/rationale:

c.  Course pre-requisites on the Master Syllabus  
Change/rationale:

d.  1<sup>st</sup> Day Handouts  
Change/rationale:

e.  Course assignments  
Change/rationale:

f.  Course materials (check all that apply)  
 Textbook  
 Handouts  
 Other:

g.  Instructional methods  
Change/rationale:

h.  Individual lessons & activities  
Change/rationale:

3. What is the timeline for implementing these actions? 1 year

**IV. Future plans**

1. Describe the extent to which the assessment tools used were effective in measuring student achievement of learning outcomes for this course.

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The skills-based final exam adequately evaluated the student's ability to scale IP addresses, configure PPP and Frame Relay; however, it did not evaluate the student's ability to configure ISDN.

The Cisco final had the appropriate questions to evaluate the other outcomes. Unfortunately, to our surprise Cisco cut off instructor access to the final exam results, so it was not possible to evaluate student achievement of these outcomes.

- 2. If the assessment tools were not effective, describe the changes that will be made for future assessments.  
We will write a departmental assessment tool to evaluate student academic achievement, since Cisco will no longer provide access to their final exam results.

- 3. Which outcomes from the master syllabus have been addressed in this report?

All \_\_\_\_\_ Selected X

If "All", provide the report date for the next full review: \_\_\_\_\_.

If "Selected", provide the report date for remaining outcomes: Winter 2010.

**Submitted by:**

Print: John Trame Signature [Signature] Date: 9/30/2009  
Faculty/Preparer

Print: Dary Downen Signature [Signature] Date: 9/30/2009  
Department Chair

Print: Rosemary Wilson Signature [Signature] Date: 11/13/09  
Dean/Administrator