Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Computer Science	271	CPS 271 10/20/2016- Object Features of C++
Division	Department	Faculty Preparer
Business and Computer Technologies	Computer Instruction	Khaled Mansour
Date of Last Filed Assessment Report		

I. Assessment Results per Student Learning Outcome

Outcome 1: Identify appropriate use of Arrays and Dynamic Memory.

- Assessment Plan
    - Assessment Tool: Multiple choice and short answer questions on a departmental exam.
    - Assessment Date: Fall 2009
    - Course section(s)/other population: all
    - Number students to be assessed: all
    - 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)
	2015	

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

# of students enrolled	# of students assessed
26	21

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 sections (excluding the student who audited the course) were assessed. 3 other students withdrew or dropped the course.

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 sections who completed the course were assessed. This includes one section taught face-to-face and one section taught online.

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

Quizzes/tests that included questions on dynamic memories and arrays.

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
20 of 21 students (95%) scored 70% (35 points) or higher on the quizzes. The standard of success was that 80% of the students would score 70% or higher. Students met the standard of success 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 well on using arrays but not as much as Dynamic memory. The number of students who did well on the arrays was 92%, but it was 90% on Dynamic Memory.

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 need to practice more using Pointers and Dynamic Memory. I have provided them with over 20 exercises to practice, but even though they met the standard, they did not do as well as the Arrays. My plan is to increase the number of points and to increase the standard of success. Also, give them in-class labs to make sure they understand the Dynamic memory very well.

Outcome 2: Identify appropriate uses of objects and classes.

- Assessment Plan

- Assessment Tool: Multiple choice and short answer questions on a departmental exam.
- Assessment Date: Fall 2009
- Course section(s)/other population: all
- Number students to be assessed: all
- 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)
	2015	

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

# of students enrolled	# of students assessed
26	21

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 sections (excluding the student who audited the course) were assessed. 3 other students withdrew or dropped the course.

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 sections who completed the course were assessed. This includes one section taught face-to-face and one section taught online.

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

Students completed a quiz/test in class.

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
20 of 21 students (95%) scored 70% (35 points) or higher on the quizzes. The standard of success was that 80% of the students would score 70% or higher. Students met the standard of success for this outcome.

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

95% of the students scored 70% or higher. They had no problem learning the material of objects and classes, and they passed the questions of the quizzes.

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.

Even though I find it hard to improve the material, with the change of the technology, I might need to change the questions to meet the latest standard and latest edition.

Outcome 3: Identify appropriate uses of the C++ standard libraries (i.e. string and iostream)

- Assessment Plan
    - Assessment Tool: Multiple choice and short answer questions on a departmental exam.
    - Assessment Date: Fall 2009
    - Course section(s)/other population: all
    - Number students to be assessed: all
    - 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)
	2015	

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

# of students enrolled	# of students assessed
26	21

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 sections (excluding the student who audited the course) were assessed. 3 other students withdrew or dropped the course.

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 sections who completed the course were assessed. This includes one section taught face-to-face and one section taught online.

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

Students took a quiz/test on FILE I/Os.

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
19 of 21 students (90%) scored 70% (35 points) or higher on the quizzes. The standard of success was that 80% of the students would score 70% or higher. Students met the standard of success for this outcome.

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

All the students did well on understanding the standard library and they had no problems whatsoever with it. Their average was 86%.

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.

At this point, there is really nothing to improve, but the material is changing very quickly, especially with the new editions. Therefore, my plan is to stay up to date with the C++ Standard Library and teach them the latest and the greatest.

Outcome 4: Identify appropriate uses of advanced C++ topics.

- Assessment Plan
    - Assessment Tool: Multiple choice and short answer questions on a departmental exam.
    - Assessment Date: Fall 2009
    - Course section(s)/other population: all
    - Number students to be assessed: all
    - 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)
	2015	

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

# of students enrolled	# of students assessed
26	21

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 sections (excluding the student who audited the course) were assessed. 3 other students withdrew or dropped the course.

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 sections who completed the course were assessed. This includes one section taught face-to-face and one section taught online.

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

Students took a quiz/test on sorting and searching.

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
20 of 21 students (95%) scored 70% (35 points) or higher on the quizzes. The standard of success was that 80% of the students would score 70% or higher. Students met the standard of success for this outcome.

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

All students were able to use the advanced topics, and they proved that throughout the semester using the quizzes they were assigned. Most of their strength was in topics such as sorting and searching.

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.

The students met the standard of success but still they need to improve in certain topics such as virtual functions, templates and polymorphism. I can improve that by assigning another machine problem on these topics.

Outcome 5: Demonstrate sound software engineering techniques in developing a working software program.

- Assessment Plan
    - Assessment Tool: A Portfolio of software programs submitted by students will be blind graded.
    - Assessment Date: Fall 2009
    - Course section(s)/other population: all
    - Number students to be assessed: all
    - 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)
	2015	

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

# of students enrolled	# of students assessed
26	21

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 sections (excluding the student who audited the course) were assessed. 3 other students withdrew or dropped the course.

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 sections who completed the course were assessed. This includes one section taught face-to-face and one section taught online.

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

Students completed 7 machine problems to determine if they are able to apply software engineering techniques.

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
Not all students attempted all programming problems. Only 113 (of 147 possible) problems were attempted. Of those 113 attempts, 107 (94.6%) were successful. Even if we take into account the 147 possible problems, 72.7% of the problems were solved correctly. Therefore, the students met the standard of success outlined 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 wrote seven C++ programs during the semester and were able to demonstrate their ability in software engineering. 94.6% of the machine problems (programs) attempted met the standard of success.

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.

The style of the programming was different among the students. Even though they met the standard of success, they need to learn the standards of writing programs. My plan is to help those who took the early course somewhere else and teach them the new standard so they can all use the same format.

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?

The course met the students' needs. Based on their achievement, I was really surprised to see the students split into two groups - one finished the course, one quit the course completely and there was no middle group.

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

At a department meeting in the fall.

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?

Everything was covered in the previous questions. There is nothing I can mention at this point.

III. Attached Files

cps271w17assessment

Faculty/Preparer:	Khaled Mansour	**Date:**	06/12/2017
Department Chair:	Philip Geyer	**Date:**	06/22/2017
Dean:	Kristin Good	**Date:**	06/26/2017
Assessment Committee Chair:	Michelle Garey	**Date:**	10/18/2017

COURSE ASSESSMENT REPORT

I. Background Information

1. Course assessed:
   Course Discipline Code and Number: CPS271
   Course Title: Object Features of C++
   Division/Department Codes: Computer Science

2. Semester assessment was conducted (check one):
   - ☒ Fall 2007
   - ☐ Winter 20__
   - ☐ Spring/Summer 20__

3. Assessment tool(s) used: check all that apply.
   - ☐ Portfolio
   - ☐ Standardized test
   - ☐ Other external certification/licensure exam
   - ☐ Survey
   - ☐ Prompt
   - ☒ Departmental exam
   - ☐ Capstone experience (specify):
   - ☐ Other (specify):

Done & scan

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.
   N/A

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.
   The whole class was selected.

II. Results

1. Briefly describe the changes that were implemented in the course as a result of the previous assessment.
   No previous assessment

2. State each outcome (verbatim) from the master syllabus for the course that was assessed.
   1. Identify appropriate use of Arrays and Dynamic Memory.
   2. Identify appropriate uses of objects and classes
   3. Identify appropriate uses of the C++ standard libraries (i.e. string and iostream)
   4. Identify appropriate uses of advanced C++ topics
   5. Demonstrate sound software engineering techniques in developing a working software program.

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:

   Most of the outcomes assessed achieved the stated syllabus rubric goals. A couple of them fell a little short. As noted below, one of the outcomes was affected by the fact that one topic wasn't covered thoroughly enough to properly prepare the students for the final. The other outcome that fell a bit short was probably due to the fact that the programming task given on the final was quite challenging for an average C++ student.

4. For each outcome assessed, indicate the standard of success used, and the percentage of students who achieved that level of success.
    1. 75% success: Identify appropriate use of Arrays and Dynamic Memory.
    2. 73% success: Identify appropriate uses of objects and classes
    3. 85% success: Identify appropriate uses of the C++ standard libraries (i.e. string and iostream)
    4. 66% success: Identify appropriate uses of advanced C++ topics
    5. 60% success: Demonstrate sound software engineering techniques in developing a working software program.

The detailed data collected is included as a separate file to this report

On item 4 above, it was noted that the topic of C++ Exceptions was not covered thoroughly enough during Fall 2007 to properly prepare the students for the exam. On item 5 above, it was noted that the program that the students needed to write on the Final exam was a bit tricky which led to some of the weaker students having difficulty. The grades in the class were "curved", and it doesn't seem necessary to make the Final a bit easier to satisfy the Rubric goal stated in the syllabus.

5. Describe the areas of strength and weakness in students' achievement of the learning outcomes shown in assessment results.

    Strengths: Students were able to master most of the concepts listed in the syllabus

    Weaknesses: The 2 areas that the students need to improve on are C++ Exceptions and creating working programs.

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 C++ Exceptions issue can be corrected by having the teacher spend more time on the topic. Creating working programs is a matter of giving the students more practice on creating programs.

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. ☐ 1st 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? N/A

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.

   The final exam given covers each of the course objectives as stated in the cps271 syllabus. The results indicated above are consistent with the expectations of the department

2. If the assessment tools were not effective, describe the changes that will be made for future assessments. N/A
3. Which outcomes from the master syllabus have been addressed in this report?
   All _X___ Selected _____
   If "All", provide the report date for the next full review: _____Fall 2010_____.

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

Submitted by:

Name: __Clarence Hasselbach_____ Date: 8/25/2008
Print/Signature

Department Chair: __Clarence Hasselbach_____ Date: 8/25/2008
Print/Signature

Dean: __Rosemary Wilson_____ Date: 8/25/08
Print/Signature

logged 8/27/08 sj