Discipline	Course Number	Title
Dental Assisting	108	DEN 108 02/11/2025- Dental Radiography
College	Division	Department
	Health Sciences	Allied Health
Faculty Preparer		Kristina Sprague
Date of Last Filed Assessment Report		11/12/2021

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

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

    Yes

    This course was assessed through Fall 2020.

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

    The standard of success was met for all three outcomes.

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

    There were no intended changes.

II. Assessment Results per Student Learning Outcome

Outcome 1: Recognize concepts and principles related to: radiation physics, health and safety factors, and quality control of radiographic images.

- Assessment Plan

    o Assessment Tool: Outcome-related final exam questions

    o Assessment Date: Winter 2023

    o Course section(s)/other population: All

    o Number students to be assessed: All

    o How the assessment will be scored: Answer key

- o   Standard of success to be used for this assessment: 80% of the students will score 80% or higher on the outcome-related questions

- o   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)
2024, 2023, 2022		

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

# of students enrolled	# of students assessed
34	25

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.

There were only 25 students enrolled during this time frame. There may be duplicates due to the labs.

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 that completed the activity were assessed.

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

The assessment tool was a final exam consisting of multiple-choice and true/false items. The exam was scored through Blackboard and an item analysis was generated.

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
Fall 2022 - 9 out of 10 questions were answered correctly by at least 80% of the students.

Fall 2023 - 9 out of 10 questions were answered correctly by at least 80% of the students.

Fall 2024 - 9 out of 10 questions were answered correctly by at least 80% of the students.

Each year 1 question (a different question each year) was targeted for review. The 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.

Given the scores on the written final, the students have a basic understanding of the concepts and principles related to radiation physics, health and safety factors, and quality control of radiographic images.

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.

Radiation physics and image formation are difficult for beginning college students to conceptualize. Students in our program learn best through hands-on activities. Use of error labs have assisted with these topics. There were several questions identified that students frequently missed. Not only will the questions be reviewed but the content in the course associated with the questions will be reviewed with future classes to ensure understanding.

Outcome 2: Evaluate student produced dental radiographs on a manikin for diagnostic purposes and troubleshooting.

- Assessment Plan
    - Assessment Tool: Performance evaluation
    - Assessment Date: Winter 2023
    - Course section(s)/other population: All
    - Number students to be assessed: All
    - How the assessment will be scored: Departmentally-developed rubric
    - Standard of success to be used for this assessment: 85% or more of students will score 85% 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)
2024, 2023, 2022		

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

# of students enrolled	# of students assessed
34	25

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.

There were only 25 students enrolled during this time frame. There may be duplicates due to the labs.

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 that completed the assessment were assessed.

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

A scoring rubric was used indicating a list of objectives for this 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: Yes

Fall 2022 - 100% of students (9/9) scored 85% or higher overall. The standard of success was met.

Fall 2023 - 88% of students (7/8) scored 85% or higher overall. The standard of success was met.

Fall 2024 - 88% of students (7/8) scored 85% or higher overall. The standard of success was met.

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

> The students were able to identify the difference between a diagnostically acceptable radiograph and one that was not diagnostically acceptable. They also correctly identified their errors and displayed a basic understanding of why the error occurred and how to correct it.

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

> While the students performed well, there is always room to grow. Lab time for error duplication and correction as well as shadow casting will continue to be allocated. In lecture, breakout rooms will be utilized for error identification.

Outcome 3: Demonstrate infection prevention and safety principles while preparing for patient exposure.

- Assessment Plan

  o Assessment Tool: Performance validation

  o Assessment Date: Winter 2023

  o Course section(s)/other population: All

  o Number students to be assessed: All

  o How the assessment will be scored: Departmentally-developed rubric

  o Standard of success to be used for this assessment: 85% or more of students will score 85% or higher on their first attempt.

  o 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)
2024, 2023, 2022		

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

# of students enrolled	# of students assessed
34	25

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.

There were only 25 students enrolled during this time frame. There may be duplicates due to the labs.

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 that completed the activity were assessed.

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

The clinical validation contains a list of criteria that are expected to be met. Each criteria is evaluated on a pass/fail basis. Clinical validations have numerical scores which are added to obtain a total. Students are expected to obtain 85% or it must be retaken.

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

Fall 2022 - 89% of students (8/9) scored 85% or higher overall. The standard of success was met.

Fall 2023 - 100% of students (8/8) scored 85% or higher overall. The standard of success was met.

Fall 2024 - 88% of students (7/8) scored 85% or higher overall. The standard of success was met.

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

Students displayed a basic understanding of where to position the image receptor in the patient's mouth and preparing the treatment room for the exposure.

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.

Although the students performed well on the validations, they continue to make mistakes with receptor placement and beam alignment device assembly. In the next session, beam alignment devices will be introduced after the first exposures. The goal is for students to pay more attention to positioning the receptor and

central ray, so that when they use the beam alignment device in future exposures, they can identify any positioning errors before the exposure.

III. Course Summary and Intended Changes Based on Assessment Results

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

There were no intended changes.

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?

Since DEN 108 precedes DEN 128 where students expose radiographs on patients in a clinical setting, this class is monitored closely. This foundation proved effective as they were successful in obtaining diagnostic images.

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

The faculty meet on a regular basis and it will be shared at that time.

4.
   Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date

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

6.

III. Attached Files

Assessment Data

Faculty/Preparer:	Kristina Sprague	**Date:** 03/25/2025
Department Chair:	Kristina Sprague	**Date:** 03/25/2025
Dean:	Shari Lambert	**Date:** 04/10/2025
Assessment Committee Chair:	Jessica Hale	**Date:** 09/17/2025

Discipline	Course Number	Title
Dental Assisting	108	DEN 108 09/30/2021-Dental Radiography
College	Division	Department
	Health Sciences	Allied Health
Faculty Preparer		Kristina Sprague
Date of Last Filed Assessment Report		10/10/2017

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

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

Yes

This course was assessed through Fall 2016.

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

The standard of success was met for two out of the three outcomes. Students did not perform to expectations with regards to preparing dental radiographs for patient exposure and expose radiographs on a manikin.

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

An additional validation was included in the course testing the students' ability to assemble the image receptor holders appropriately. This was added in the next offering of the course.

II. Assessment Results per Student Learning Outcome

Outcome 1: Recognize concepts and principles related to: radiation physics, health and safety factors, and quality control of radiographic images.

- Assessment Plan

    o Assessment Tool: Final exam

    o Assessment Date: Winter 2020

    o Course section(s)/other population: All

- o Number students to be assessed: All

- o How the assessment will be scored: Final exam is scored against an answer key.

- o Standard of success to be used for this assessment: 80% or more of the students will correctly answer each item. Items with scores lower than 80% will be targeted for review. 80% of the students will score 80% overall.

- o Who will score and analyze the data: Faculty assigned to teach the course will analyze the data. Written test responses are multiple choice and true/false which are scored through Blackboard. An item analysis is generated from the scored 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)
2020, 2019, 2018, 2017		

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

# of students enrolled	# of students assessed
79	38

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.

There were only 38 students enrolled during this time frame. There may be duplicates due to the labs.

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 that completed the assessment were assessed.

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

The assessment tool was a final exam consisting of multiple-choice and true/false items. The exam was scored through Blackboard and an item analysis was generated.

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
In 2017, 100% of the students scored 80% overall. The standard of success was met. In 2018, 11 out of 14 students scored 80% or higher. 79% of the students scored 80% overall. While the standard wasn't met for this semester, the overall standard of success was met for this outcome. In 2019, 100% of the students scored 95% overall. The standard of success was met. In 2020, 3 out of 4 students scored 80 or higher. 75% of the students scored 80 or higher. Overall, 34 out of 38 students scored 80% or higher on the final exam. 89% of the students scored at least 80%. The standard of success was met.

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

Given the scores on the written final, the students have a basic understanding of the concepts and principles related to radiation physics, health and safety factors, and quality control of radiographic images.

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.

Radiation physics and image formation are difficult for beginning college students to conceptualize. Students in our program learn best hands on. Use of error labs have assisted with these topics. There were several questions identified that students frequently missed. Not only will the question be reviewed but the content in the course associated with the question will be reviewed with future classes to ensure understanding.

Outcome 2: Evaluate student produced dental radiographs on a manikin for diagnostic purposes and troubleshooting.

- Assessment Plan
  - Assessment Tool: Performance evaluation
  - Assessment Date: Winter 2020

- o Course section(s)/other population: All

- o Number students to be assessed: All

- o How the assessment will be scored: Radiographic evaluations are rated with numerical scores based on a department rubric. Scores are added to obtain a total.

- o Standard of success to be used for this assessment: 85% or more of students will score 85% or higher.

- o Who will score and analyze the data: Faculty assigned to teach the course will analyze the data. Performance evaluation data is numerical; total scores are used.

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)
2020, 2019, 2018, 2017		

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

# of students enrolled	# of students assessed
79	38

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.

There were only 38 students enrolled during this time frame. There may be duplicates due to the labs.

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 that completed the activity were assessed.

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

A scoring rubric is used indicating a list of objectives for this 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: <u>Yes</u>
In 2017, 14 out of the 15 students scored 85% or higher. 93% of the students scored 85% or higher overall. The standard of success was met. In 2018, 12 out of the 14 students scored 85% or higher. 85% of the students scored 85% or higher overall. The standard of success was met. In 2019, 100% of the students scored 97% overall. The standard of success was met. In 2020, 3 out of 4 students scored 85 or higher. 75% of the students scored 85 or higher. The standard of success was not met for this semester but the overall standard was met for this outcome. Overall, 34 out of 38 students scored 80% or higher on the assessment. 89% of the students scored at least 80%. The standard of success was met.

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

The students were able to identify the difference between a diagnostically acceptable radiograph and one that was not diagnostically acceptable. They also correctly identified their errors and displayed a basic understanding of why the error occurred and how to correct it.

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

An error lab was not possible due to COVID in 2020 and could explain the lower scores. Error labs and submission of rough drafts have increased scores over the years. Students also need to meet with the instructor one on one to review their drafts. These activities will continue.

Outcome 3: Demonstrate infection prevention and safety principles while preparing for patient exposure.

- Assessment Plan

    o Assessment Tool: Performance validation

    o Assessment Date: Winter 2020

    o Course section(s)/other population: All

    o Number students to be assessed: All

- o How the assessment will be scored: Performance validations are rated with numerical scores based on a department rubric. Scores are added to obtain a total.

- o Standard of success to be used for this assessment: 85% or more of students will score 85% or higher on their first attempt.

- o Who will score and analyze the data: Faculty assigned to teach the course will analyze the data. Performance validation data is numerical; total scores are used.

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)
2020, 2019, 2018, 2017		

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

# of students enrolled	# of students assessed
79	38

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.

There were only 38 students enrolled during this time frame. There may be duplicates due to the labs.

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 that completed the activity were assessed.

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

The clinical validation contains a list of criteria that are expected to be met. Each criteria is evaluated on a pass/fail basis. Clinical validations have numerical scores which are added to obtain a total. Students are expected to obtain 85% or it must be retaken.

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>
In 2017, 13 out of 15 students scored 85% or higher. 85% of the students scored 85% or higher overall. The standard of success was met. In 2018, 12 out of the 14 students scored 85% or higher. 85% of the students scored 85% or higher overall. The standard of success was met. In 2019, 4 out of 5 students scored 85% or higher. 80% of the students scored 85% or higher overall. The standard of success was not met. In 2020, 100% of the students scored 92% overall. The standard of success was met. Overall, 33 out of 38 students scored 80% or higher on the assessment. 87% of the students scored at least 80%. The standard of success was met.

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

> Students displayed a basic understanding of where to position the image receptor in the patient's mouth and preparing the treatment room for the exposure.

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 rush through these activities in order to complete all their lab projects and don't have access to the receptor holders at home. Plans are underway to 3D print receptor holders for students to use at home for practice. (Thanks Shawn!!) The "patient" practice was modified as a laboratory activity rather than validation. Students are asked questions about the experience from both the patient and operator perspective. These questions will be reviewed to ensure that the activity is achieving its intent.

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.

> The additional validation has helped not only in their understanding of the overall placement of image receptor holders in the patient's mouth but also their speed of assembly. In a clinical setting, accuracy and efficiency are extremely important.

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?

> Since DEN 108 precedes DEN 128 where students expose radiographs on patients in a clinical setting, this class is monitored closely. This foundation proved effective as they were successful in obtaining diagnostic images.

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

> The faculty meet on a regular basis and it will be shared at that time.

4.

Intended Change(s)

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

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

> 6.

III. Attached Files

DEN 108 Assessment Data

Faculty/Preparer: Kristina Sprague **Date:** 09/30/2021
Department Chair: Kristina Sprague **Date:** 09/30/2021
Dean: Eva Samulski **Date:** 10/01/2021
Assessment Committee Chair: Shawn Deron **Date:** 11/12/2021

Discipline	Course Number	Title
Dental Assisting	108	DEN 108 04/26/2017- Dental Radiography
Division	Department	Faculty Preparer
Health Sciences	Allied Health	Kristina Sprague
Date of Last Filed Assessment Report		

I. Assessment Results per Student Learning Outcome

Outcome 1: Recognize concepts and principles related to: radiation physics, health and safety factors, and quality control of radiographic images.

- Assessment Plan

    o   Assessment Tool: Final exam

    o   Assessment Date: Winter 2016

    o   Course section(s)/other population: all

    o   Number students to be assessed: all

    o   How the assessment will be scored: Final exam is scored against an answer key.

    o   Standard of success to be used for this assessment: 80% or more of the students will correctly answer each item. Items with scores lower than 80% will be targeted for review.

    o   Who will score and analyze the data: Faculty assigned to teach the course will analyze the data. Written test responses are multiple choice and true/false and are scored through Blackboard. An item analysis is generated from the scored 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)
2016, 2015, 2014		

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

# of students enrolled	# of students assessed
77	37

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.

> There were only 37 students enrolled during this time frame - 2 withdrew. There may be duplicates due to the labs.

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 that completed the final were assessed.

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

> The assessment tool was a final exam consisting of multiple choice and true/false items. The exam was scored through BlackBoard and an item analysis was generated.

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>**
>
> 2016 - Overall 100% of the students passed at 86% or higher - 12 out of 100 questions were targeted for review - less than 80% of the students correctly answered the question. 88% of the questions were answered correctly by 80% of the students overall.
>
> 2015 - Overall 100% of the students passed at 84% or higher - 11 out of 100 questions were targeted for review - less than 80% of the students correctly answered the question. 89% of the questions were answered correctly by 80% of the students overall.
>
> 2014 - Overall 100% of the students passed at 82% or higher - 15 out of 100 questions were targeted for review - less than 80% of the students correctly answered the question. 85% of the questions were answered correctly by 80% of the students overall.

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

Given the scores on the written final, the students have a basic understanding of the concepts and principles related to radiation physics, health and safety factors, and quality control of radiographic images.

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.

There were several questions identified that students frequently missed. Not only will the question be reviewed but the content in the course associated with the question will be reviewed with future classes to ensure understanding.

Outcome 2: Evaluate dental radiographs.

- Assessment Plan

    o Assessment Tool: Performance evaluation

    o Assessment Date: Winter 2016

    o Course section(s)/other population: all

    o Number students to be assessed: all

    o How the assessment will be scored: Radiographic evaluations are rated with numerical scores based on a department rubric. Scores are added to obtain a total.

    o Standard of success to be used for this assessment: 90% or more of students will score 84% or higher.

    o Who will score and analyze the data: Faculty assigned to teach the course will analyze the data. Performance evaluation data is numerical; total scores are used.

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, 2015, 2014		

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

# of students enrolled	# of students assessed
77	37

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.

There were only 37 students enrolled during this time frame - 2 withdrew. There may be duplicates due to the labs.

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 that completed the activity were assessed.

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

A rubric is used indicating a list of objectives for this 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: Yes

2016 - 100% of the students passed at 86% or higher

2015 - 100% of the students passed at 88% or higher

2014 - 81% of the students passed at 84% or higher

While in 2014 the standard of success was not met, it was met overall.

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

The students were able to identify the difference between a diagnostically acceptable radiograph and one that was not diagnostically acceptable. They also correctly identified their errors and displayed a basic understanding of why the error occured and how to correct it.

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

In 2015 and 2016 we held an error lab. The students were given a film and had to expose a radiograph that included the same errors as well as a diagnostically

acceptable radiograph. This seemed to work well and could explain the higher scores. This lab will be included in the schedule in future years.

Outcome 3: Prepare dental radiographs for patient exposure and expose radiographs on a mannequin.

- Assessment Plan

    o   Assessment Tool: Performance validation

    o   Assessment Date: Winter 2016

    o   Course section(s)/other population: all

    o   Number students to be assessed: all

    o   How the assessment will be scored: Performance validations are rated with numerical scores based on a department rubric. Scores are added to obtain a total.

    o   Standard of success to be used for this assessment: 90% or more of students will score 90% or higher on their fist attempt.

    o   Who will score and analyze the data: Faculty assigned to teach the course will analyze the data. Performance validation data is numerical; total scores are used.

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, 2015, 2014		

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

# of students enrolled	# of students assessed
77	37

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.

There were only 37 students enrolled during this time frame - 2 withdrew. There may be duplicates due to the labs.

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 that completed the activity were assessed.

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

The clinical validation contains a list of criteria that are expected to be met. Each criteria is evaluated on a pass/fail basis. Clinical validations have numerical scores which are added to obtain a total. Students are expected to obtain 90% or it must be retaken.

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

2016 - 100% of the students passed at 100%

2015 - 67% of the students passed at 90% or higher on their first attempt

2014 - 81% of the students passed at 90% or higher on their first attempt

Overall 81% of the students passed at 90% or higher.

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

Students displayed a basic understanding of where to position the image receptor in the patient's mouth and preparing the treatment room for the exposure.

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 spend a majority of their lab time working with the DXTTR manikins. They do not spend enough time practicing with a classmate on being sensitive to the patient's comfort and needs and assembling the receptor holders. In the future an additional validation of image receptor holder assembly and keeping smaller numbers in the treatment rooms will be employed.

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?

DEN 108 precedes DEN 128 where students expose radiographs on patients in a clinical setting. This foundation proved well as they were successful in obtaining diagnostic images. While nothing in the assessment process surprised me, it did validate the need for smaller numbers in the DEN 108 labs. We had smaller numbers in 2016 and the higher outcomes proved this point.

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

The faculty meet on a regular basis and it will be shared at that time.

3.

Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Course Assignments	An additional clinical validation will be included in the course testing the students ability to assemble the image receptor holders appropriately.	Due to exposure errors and time that is wasted trying to assemble the holders, students need to be more efficient in the assembly.	2017

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

5.

III. Attached Files

Activities
Validation
Assessment Data

Faculty/Preparer:	Kristina Sprague **Date:** 04/27/2017
Department Chair:	Connie Foster **Date:** 04/27/2017
Dean:	Valerie Greaves **Date:** 04/27/2017
Assessment Committee Chair:	Michelle Garey **Date:** 09/27/2017

Discipline	Course Number	Title
Dental Assisting	108	DEN 108 05/12/2014- Dental Radiography
Division	Department	Faculty Preparer
Math, Science and Health	Allied Health	Kristina Sprague
Date of Last Filed Assessment Report		

I. Assessment Results per Student Learning Outcome

Outcome 1: Recognize concepts and principles related to: radiation physics, health and safety factors, and quality control of radiographic images.

- Assessment Plan
    - Assessment Tool: Final exam
    - Assessment Date: Winter 2012
    - Course section(s)/other population: all
    - Number students to be assessed: all
    - How the assessment will be scored: Final exam is scored against an answer key.
    - Standard of success to be used for this assessment: 80% or more of the students will correctly answer each item. Items with scores lower than 80% will be targeted for review.
    - Who will score and analyze the data: Faculty assigned to teach the course will analyze the data. Written test responses are multiple choice and true/false and are scored through Blackboard. An item analysis is generated from the scored 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)
2013		

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

# of students enrolled	# of students assessed
42	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.

> There were only 19 students that completed the assessment tools. 2 students were withdrawn. (I believe the 42 includes the lecture and lab sections. However there were only 21 total students.)

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 were assessed.

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

> The final exam was scored in BlackBoard and an item analysis was generated.

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
>
> The standard of success was 80% or more of the students will correctly answer each question. Items with scores lower than 80% will be targeted for review. While 84% of the students received a 80% or higher, there were 22 out of 100 questions targeted for review. The standard of success was not met.

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

> Students demostrated a basic understanding of radiation physics, health and safety factors, and quality control. These are hard concepts to digest in a 7 1/2 week 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.

> Image formation was an area that stood out with regards to frequently missed questions. In the past, students have had an identification validation that would have helped in this area. We had taken it out of DEN 108 and added it to DEN 128 due to time constraints. It might warrant revisiting adding a similiar assignment back to this course.

Outcome 2: Evaluate dental radiographs.

- Assessment Plan

    o Assessment Tool: Performance validation

    o Assessment Date: Winter 2011

    o Course section(s)/other population: all

    o Number students to be assessed: all

    o How the assessment will be scored: Performance validations are rated with numerical scores based on a department rubric. Scores are added to obtain a total.

    o Standard of success to be used for this assessment: 90% or more of students will score 90% or higher on their first attempt.

    o Who will score and analyze the data: Faculty assigned to teach the course will analyze the data. Performance validation data is numerical; total scores are used.

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)
2013		

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

# of students enrolled	# of students assessed
42	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.

There were only 19 students that completed the assessment tools. 2 students were withdrawn. (I believe the 42 includes the lecture and lab sections. However there were only 21 total students.)

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 were assessed.

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

> Radiographic evaluations are rated with numerical scores based on a departmental rubric. Scores are added to obtain a total.

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
>
> 95% of the students achieved 84% or higher. The standard of success exceeded the 90% and was met.

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

> Students were able to articulate whether their films were diagnostically acceptable or not as well as identify how to correct the issue if there was one.

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.

> It is interesting that they were able to clinically evaluate their own films yet not as clearly relate that information to a written final exam. Currently this assignment is evaluated as either correct or incorrect. Adding a rubric to help evaluate the quality of the answers as well as give the students a better idea of the answer we are looking for, can better assess their understanding of the material.

Outcome 3: Prepare dental radiographs for patient exposure and expose radiographs on a mannequin.

- Assessment Plan
    - Assessment Tool: Performance evaluation
    - Assessment Date: Winter 2012
    - Course section(s)/other population: all
    - Number students to be assessed: all
    - How the assessment will be scored: Radiographic evaluations are rated with numerical scores based on a department rubric. Scores are added to obtain a total.

- o Standard of success to be used for this assessment: 90% or more of students will score 84% or higher.

- o Who will score and analyze the data: Faculty assigned to teach the course will analyze the data. Performance evaluation data is numerical; total scores are used.

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)
2013		

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

# of students enrolled	# of students assessed
42	17

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.

There were only 17 students that completed the assessment tool. 2 students were withdrawn. 2 students did not complete the assignment. (I believe the 42 includes the lecture and lab sections. However there were only 21 total students.)

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 were assessed.

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

Performance validations are rated with numerical scores based on a department rubric. Scores are added to obtain a total.

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 17 students scored 90% or higher on their first attempt. The standard of success indicated 90% and thus the standard was met.

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

> Students were able to implement infection control guidelines and appropriate patient safety protocols when placing films on each other using a variety of film holding devices and techniques.

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

> This validation is effective in assessing students' ability to prepare and place dental radiographs for patient exposure. It did not address exposure of radiographs on a mannequin, which for the purposes of this assessment may not be necessary.

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?

> Radiation physics and image formation have always been difficult concepts for students to understand in a 7 1/2 week course. This year, students seem to grasp the physics portion a little better, however the image formation portion they struggled with a little more. This is surprising given their evaluation of their radiographs. However, their responses in this activity often don't dive deep enough into the concepts. This is a concern that will be addressed in the next course offering.

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

> The faculty will be made aware of this at our next departmental meeting as well as be consulted in preparing an action plan.

3.

Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Course Assignments	A clearly defined rubric will be added to an existing assignment to better assess their	In order to increase their understanding of the material that was assessed using the final exam,	2014

	understanding of key concepts relating to image formation. An additional validation will be added that will assess the students understanding of image formation as well.	additional assignments with clear rubrics will be added.	

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

III. Attached Files

DEN 108 Assessment Data
DEN 108 validation
DEN 108 Activities

Faculty/Preparer: Kristina Sprague **Date:** 05/12/2014
Department Chair: Connie Foster **Date:** 05/13/2014
Dean: Kristin Brandemuehl **Date:** 07/08/2014
Assessment Committee Chair: Michelle Garey **Date:** 09/18/2014

COURSE ASSESSMENT REPORT

I. Background Information
1. Course assessed:
    Course Discipline Code and Number: **DEN 108**
    Course Title: **Dental Radiography**
    Division/Department Codes: **Health and Applied Technologies (HAT)**

2. Semester assessment was conducted (check one):
    ☒ Fall 2008_
    ☐ Winter 20_
    ☐ 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):
    ☒ Other (specify): **Practical Exam and laboratory assignment**

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.
    For the departmental exam, there was clarification of the wording. The administration of the exam was changed to allow for item analysis.

5. Indicate the number of students assessed/total number of students enrolled in the course.
    19 students completed the departmental and practical exams and all were assessed.

6. Describe how students were selected for the assessment.
    All 19 students were assessed.

II. Results
1. Briefly describe the changes that were implemented in the course as a result of the previous assessment.
    The administration of the departmental exam was changed to allow for item analysis.

2. State each outcome (verbatim) from the master syllabus for the course that was assessed.

    1. **Recognize concepts and principles related to:**
        a. **radiation physics**
        b. **health and safety factors**
        c. **quality control of radiographic images**
    2. **Examine dental radiographs.**
    3. **Prepare dental radiographs for patient exposure and expose radiographs on a manikin.**

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.*
    Outcome 1: 26 out of 100 items were targeted for review (departmental exam)

    Outcome 2: 95% of the students passed at 80% or above on the first attempt. (laboratory assignment)

    Outcome 3: 100% of the students passed at 90% or above on the first attempt. (practical exam)

COURSE ASSESSMENT REPORT

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: Standard to be used is 80% for each item. Items with scores lower than 80% will be targeted for review.
   Outcome 2: Standard to be used is 90% of students pass on first attempt.
   Outcome 3: Standard to be used is 90% of students pass on first attempt.

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

Strengths:	**Processing, mounting and identification of radiographs were strengths of this group. X-ray placement and exposure were also strengths as evidenced by their patient experience in DEN 128.**
Weaknesses:	**Recognizing concepts and principles relating to radiation physics was a weakness as noted by the departmental 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.

   Outcome #1: **All items with lower than 80% pass rate will be reviewed. Frequently missed questions on the final will be reviewed and additional questions added to the post tests to better test the student's level of comprehension and prepare them for the final.**

   Additional classroom discussion will be added.

   Outcome #2: **No changes**

   Outcome #3: **The use of digital sensors has greatly improved students' comprehension. They are able to see their image immediately while the sensor and tube head are still in position. Students can make the necessary adjustments and learn from the experience. With the additional digital sensor that was added last year, students had greater access and were required to complete 1/2 the mouth using digital radiography first prior to their analog exposure. For the Fall 2009 semester, a third sensor will be added, and students will be required to complete the full mouth using the digital sensor first and then complete ½ the mouth using analog radiography.**

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: **As mentioned above, the post-tests and final will be revised, and additional classroom experience and discussion will be added.**

   f. ☐ Course materials (check all that apply)
   ☐ Textbook

COURSE ASSESSMENT REPORT

☐ Handouts
☐ Other:

g. ☐ Instructional methods
Change/rationale:

h. ☒ Individual lessons & activities
Change/rationale: **Additional class time will be allocated to the areas where weaknesses were noted.**

3. What is the timeline for implementing these actions? **Changes to the multiple choice questions will be addressed prior to the next offering. Additional classroom time will be allocated beginning with the Fall 2009 semester.**

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.
All assessment tools were found to be effective.

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 2011_____.

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

Submitted by:

Name: _Kristina Sprague_   Date: _7/14/09_
    Print/Signature

Department Chair: _____   Date: _7/14/09_
    Print/Signature

Dean: _____   Date: _7/15/09_
    Print/Signature

logged 7/16/09