Western Technical College

31508309 Dental Laboratory Procedures

Course Outcome Summary

Course Information

Description: Prepares Dental Assistant students to produce alginate impressions and fabricate diagnostic models, oral appliances, temporary restorations, and custom trays. Students also polish oral appliances.

Career Cluster: Health Science

Instructional Level: Technical Diploma Courses

Total Credits: 4.00

Total Hours: 144.00

Types of Instruction

Instruction Type | Credits/Hours
--- | ---
Lecture | 2 CR / 72 HR
Lab | 2 CR / 72 HR

Course History

Last Approval Date: 5/1/2012

Target Population

Individuals who are preparing for careers as dental assistants.

Pre/Corequisites

Prerequisite: 10508113 Dental Materials

Textbooks

No textbook required.

Learner Supplies

Safety Glasses. **Vendor:** Campus Shop. Required.
Lab Coat. **Vendor:** To be discussed in class. Required.
Utility Gloves. **Vendor:** To be discussed in class. Required.

**Core Abilities**

1. **Apply mathematical concepts.**
   
   **Status** Active

2. **Demonstrate ability to think critically.**

   **Status** Active

3. **Demonstrate ability to value self and work ethically with others in a diverse population.**

   **Status** Active

4. **Make decisions that incorporate the importance of sustainability.**

   **Status** Active

5. **Transfer social and natural science theories into practical applications.**

   **Status** Active

6. **Use effective communication skills.**

   **Status** Active

7. **Use technology effectively.**

   **Status** Active

**Program Outcomes**

1. **Manage infection and hazard control**

   **Status** Active

2. **Perform advanced dental laboratory procedures**

   **Status** Active

3. **Demonstrate professional behaviors, ethics and appearance**

   **Status** Active

**External Standards**

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**Target Standards**

2-4 The curriculum must be structured on the basis of, a minimum of, one academic year of full-time study or its equivalent at the postsecondary level.

2-5 The curriculum must be designed to reflect the interrelationship of its general education, biomedical sciences, dental sciences, clinical sciences and clinical practice. This content must be integrated and of
sufficient depth, scope, sequence of instruction, quality and emphasis to ensure achievement of the curriculum's defined competencies.

2-6 Written documentation of each course in the curriculum must be provided and include the course description, course outline including topics to be presented, specific instructional objectives, learning experiences including time allocated for each experience and evaluation procedures.

2-8.a Manage infection and hazard control protocol consistent with published professional guidelines.

2-8.j Maintain accurate patient treatment records.

2-8.n Fabricate custom trays.

2-8.o Clean and polish removable appliances and prostheses.

2-8.p Fabricate provisional restorations.

2-11 The curriculum must include content in five areas: general education, biomedical sciences, dental sciences, clinical sciences and clinical practice.

2-14 The biomedical science aspect of the curriculum must include content at the in-depth level in bloodborne pathogens and hazard communications standards and content must be integrated throughout the didactic, preclinical, laboratory and clinical components of the curriculum.

2-16.a The dental science aspect of the curriculum must include content at the in-depth level in dental materials.

2-21.f The clinical science aspect of the curriculum must include content at the in-depth level to include oral health education.

2-27 As students progress through the clinical phase of the program, their levels of performance must be expected to elevate.

2-28 Students must maintain a record of their activities in each assignment.

2-32 The program must employ objective student evaluation methods that measure all defined laboratory, preclinical and clinical course objectives. Examples of evidence to demonstrate compliance may include: a. Students and faculty assess progress in relation to the stated course objectives. b. The required competencies are based on generally accepted standards. c. Specific criteria for measuring levels of competence are developed for each component of a given procedure. d. Students' performance is measured against accepted program standards. e. Standards of performance are adjusted upward as students progress through the curriculum.

Course Competencies

1. Produce alginate impressions

   Domain Psychomotor Level Practice Status Active

   Linked Core Abilities
   Apply mathematical concepts.
   Demonstrate ability to think critically.
   Demonstrate ability to value self and work ethically with others in a diverse population.
   Make decisions that incorporate the importance of sustainability.
   Use effective communication skills.

   Linked Program Outcomes
   Manage infection and hazard control
   Perform advanced dental laboratory procedures
   Demonstrate professional behaviors, ethics and appearance

   Assessment Strategies
   1.1. by loading, seating, and removing the impression tray, to obtain an acceptable alginate impression, on a
patient in a clinic setting
1.2. by preparing and taking a wax bite registration on a patient in a clinic setting
1.3. without the use of references

Criteria

Your performance will be successful when:
1.1. you select the correct equipment and supplies needed to produce an alginate impression
1.2. you prepare an occlusal wax bite registration
1.3. you take upper and lower alginate impressions
1.4. you perform all critical steps in the right order
1.5. you position yourself correctly
1.6. you wear personal protective equipment
1.7. you follow safety procedures
1.8. you verbalize an explanation of the process as you perform it
1.9. you disinfect wax bite registration and alginate impressions
1.10. you store and label the wax bite registration and alginate impressions correctly
1.11. the alginate impressions and wax bite registration meet published specifications
1.12. patient's records show accurate, up-to-date documentation of treatment and services

Learning Objectives
1.a. Use dental terminology related to alginate impressions appropriately
1.b. Review the armamentarium and materials used in producing alginate impressions
1.c. Discuss the aspects of patient preparation for an alginate impression
1.d. Sequence the steps in producing an alginate impression
1.e. Identify the criteria needed for an acceptable alginate impression
1.f. Evaluate impression using stated criteria
1.g. Describe the disinfection technique for alginate impressions
1.h. Explain the various materials and techniques for taking a bite registration
1.i. Identify the waxes used when producing alginate impressions
1.j. Identify the personal protective equipment required
1.k. Select appropriate communication skills throughout the dental procedure
1.l. Identify appropriate aseptic techniques used when producing alginate impressions
1.m. Determine safety procedures to follow during producing an alginate impression

2. Fabricate models

Domain Psychomotor Level Practice Status Active

Linked Core Abilities
Apply mathematical concepts.
Demonstrate ability to think critically.
Demonstrate ability to value self and work ethically with others in a diverse population.
Make decisions that incorporate the importance of sustainability.
Use technology effectively.

Linked Program Outcomes
Manage infection and hazard control
Perform advanced dental laboratory procedures
Demonstrate professional behaviors, ethics and appearance

Assessment Strategies
2.1. by fabricating a set of models poured from an impression of a role play peer/patient in the clinic
2.2. without the use of references

Criteria

Your performance will be successful when:
2.1. you select the correct equipment and supplies needed to use a gypsum product to pour a model from an impression
2.2. you perform all critical steps in the right order
2.3. you wear personal protective equipment
2.4. you follow safety procedures
2.5. the models meet the criteria for evaluating models
2.6. patient's records show accurate, up-to-date documentation of treatment and services

Learning Objectives
2.a. Use dental terminology related to models appropriately
2.b. Review the armamentarium and materials used in fabricating models
2.c. Identify the criteria needed for an acceptable model
2.d. Sequence the steps in fabricating models
2.e. Evaluate fabricated models using stated criteria
2.f. Describe the disinfection technique for models
2.g. Identify the personal protective equipment required
2.h. Determine safety procedures to follow when fabricating models

3. **Trim models**

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<th>Psychomotor</th>
<th><strong>Level</strong></th>
<th>Practice</th>
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**Linked Core Abilities**
- Apply mathematical concepts.
- Demonstrate ability to think critically.
- Demonstrate ability to value self and work ethically with others in a diverse population.
- Make decisions that incorporate the importance of sustainability.
- Use technology effectively.

**Linked Program Outcomes**
- Manage infection and hazard control
- Perform advanced dental laboratory procedures
- Demonstrate professional behaviors, ethics and appearance

**Assessment Strategies**
3.1. by using a wax bite registration from a manikin or role play peer/patient in the clinic
3.2. by trimming a set of study models using a model trimmer
3.3. without the use of references

**Criteria**

Your performance will be successful when:
3.1. you select the correct equipment and supplies needed to trim study models
3.2. you perform all critical steps in the right order
3.3. you wear personal protective equipment
3.4. you follow safety procedures
3.5. you demonstrate the cast cuts used to trim a study model
3.6. the trimmed models meet the criteria for evaluating trimmed study models
3.7. patient's records show accurate, up-to-date documentation of treatment and services

**Learning Objectives**
3.a. Use dental terminology related to models appropriately
3.b. Identify the armamentarium and materials used in trimming models
3.c. Identify the criteria needed for an acceptable trimmed model
3.d. Sequence the steps in trimming, labeling and polishing models
3.e. Evaluate trimmed models using stated criteria
3.f. Identify the personal protective equipment required
3.g. Determine safety procedures to follow when trimming models

4. **Create vacuum-formed oral appliances**

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**Linked Core Abilities**
- Apply mathematical concepts.
- Demonstrate ability to think critically.
- Demonstrate ability to value self and work ethically with others in a diverse population.
- Make decisions that incorporate the importance of sustainability.
- Use technology effectively.

**Linked Program Outcomes**
Manage infection and hazard control
Perform advanced dental laboratory procedures
Demonstrate professional behaviors, ethics and appearance

Assessment Strategies
4.1. by operating a vacuum forming machine
4.2. by creating an oral appliance (i.e. mouth guard, custom tray and bleaching tray) on a model using a vacuum forming machine in the laboratory
4.3. without the use of references

Criteria
Your performance will be successful when:
4.1. you select the correct equipment and supplies needed to prepare vacuum-formed oral appliances
4.2. you perform all critical steps in the right order
4.3. you wear personal protective equipment
4.4. you follow safety procedures
4.5. the vacuum-formed oral appliances meet the criteria for evaluation
4.6. patient's records show accurate, up-to-date documentation of treatment and services

Learning Objectives
4.a. Use dental terminology related to vacuum-former and vacuum-formed oral appliances appropriately
4.b. Identify the armamentarium and materials used in vacuum-forming various oral appliances
4.c. Identify the criteria needed for an acceptable vacuum-formed oral appliance
4.d. Sequence the steps when using a vacuum former
4.e. Sequence the steps in creating a vacuum-formed oral appliance
4.f. Evaluate the vacuum-formed oral appliance using stated criteria
4.g. Identify the personal protective equipment required
4.h. Determine safety procedures to follow when using the vacuum former

5. Fabricate custom impression trays

Domain  Psychomotor  Level  Practice  Status  Active

Linked Core Abilities
Apply mathematical concepts.
Demonstrate ability to think critically.
Demonstrate ability to value self and work ethically with others in a diverse population.
Transfer social and natural science theories into practical applications.
Use effective communication skills.
Use technology effectively.

Linked Program Outcomes
Manage infection and hazard control
Perform advanced dental laboratory procedures
Demonstrate professional behaviors, ethics and appearance

Assessment Strategies
5.1. by fabricating upper and lower acrylic resin custom impression trays on models in the laboratory
5.2. without the use of references

Criteria
Your performance will be successful when:
5.1. you select the correct equipment and supplies needed to fabricate custom impression trays
5.2. you perform all critical steps in the right order
5.3. you wear personal protective equipment
5.4. you follow safety procedures
5.5. the custom impression trays meet the criteria for evaluation
5.6. patient's records show accurate, up-to-date documentation of treatment and services

Learning Objectives
5.a. Use dental terminology related to custom impression trays appropriately
5.b. Describe the characteristics and properties of polymers
5.c. Identify the armamentarium and materials used in fabricating custom impression trays
5.d. Explain the purpose of a custom impression trays
5.e. Compare the use of a custom impression tray with a stock tray
5.f. Identify the waxes used when fabricating custom impression trays
5.g. Explain the purpose of the spacer and occlusal stops in a custom impression tray
5.h. Identify the criteria needed for an acceptable custom impression tray
5.i. Sequence the steps in fabricating various custom impression trays
5.j. Evaluate fabricated custom impression trays using stated criteria
5.k. Describe the disinfection technique for custom impression trays
5.l. Identify the personal protective equipment required
5.m. Determine safety procedures to follow when fabricating custom impression trays

6. **Polish oral appliances**

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<th>Domain</th>
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<th>Practice</th>
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Linked Core Abilities
Demonstrate ability to think critically.
Use technology effectively.

Linked Program Outcomes
Manage infection and hazard control
Perform advanced dental laboratory procedures
Demonstrate professional behaviors, ethics and appearance

Assessment Strategies
6.1. by polishing any acrylic-based appliance using a dental lathe in the laboratory
6.2. without the use of references

Criteria
Your performance will be successful when:
6.1. you select the correct equipment and supplies needed to polish oral appliances
6.2. you perform all critical steps in the right order
6.3. you wear personal protective equipment
6.4. you follow safety procedures
6.5. the polished oral appliance meets the criteria for evaluation
6.6. patient's records show accurate, up-to-date documentation of treatment and services

Learning Objectives
6.a. Use dental terminology related to polishing oral appliances appropriately
6.b. Identify the armamentarium and materials used in polishing oral appliances
6.c. Differentiate among the various polishing agents
6.d. Identify the criteria needed for an acceptable polished oral appliance
6.e. Sequence the steps in polishing oral appliances
6.f. Evaluate polished oral appliance using stated criteria
6.g. Describe the disinfection technique when polishing oral appliances
6.h. Identify the personal protective equipment required
6.i. Determine safety procedures to follow when polishing oral appliances

7. **Prepare provisional tooth coverage**

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<th>Level</th>
<th>Adaptation</th>
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Linked Core Abilities
Apply mathematical concepts.
Demonstrate ability to think critically.
Demonstrate ability to value self and work ethically with others in a diverse population.
Transfer social and natural science theories into practical applications.
Use effective communication skills.
Use technology effectively.

Linked Program Outcomes
Manage infection and hazard control
Perform advanced dental laboratory procedures
Demonstrate professional behaviors, ethics and appearance
Assessment Strategies

7.1. by preparing a temporary crown or bridge, in a laboratory setting, using the models provided
7.2. without the use of references

Criteria

Your performance will be successful when:

7.1. you select the correct equipment and supplies needed to prepare provisional tooth coverage
7.2. you perform all critical steps in the right order
7.3. you wear personal protective equipment
7.4. you follow safety procedures
7.5. the provisional coverage meets the criteria for evaluating provisional tooth coverage
7.6. patient's records show accurate, up-to-date documentation of treatment and services

Learning Objectives

7.a. Use dental terminology related to provisional tooth coverage appropriately
7.b. Describe the characteristics and properties of polymers
7.c. Compare the various types of materials used for provisional tooth coverage
7.d. Identify the armamentarium and materials used in preparing provisional tooth coverage
7.e. Identify the criteria needed for a provisional tooth coverage
7.f. Sequence the steps in preparing provisional tooth coverage
7.g. Evaluate prepared provisional tooth coverage using stated criteria
7.h. Describe the disinfection technique for provisional tooth coverage
7.i. Identify the personal protective equipment required
7.j. Determine safety procedures to follow when preparing provisional tooth coverage

8. Explain the indications, procedure, and benefits of indirect restoration to a patient

Domain  Cognitive  Level  Application  Status  Active

Linked Core Abilities
Demonstrate ability to think critically.
Demonstrate ability to value self and work ethically with others in a diverse population.
Use effective communication skills.

Linked Program Outcomes
Demonstrate professional behaviors, ethics and appearance

Assessment Strategies

8.1. in a role play with a partner

Criteria

Your performance will be successful when:

8.1. explanation describes the indications for at least three indirect restorations (choose from crowns, inlays, bridges, dentures, partials, or porcelain)
8.2. explanation describes the difference between temporary restoration and permanent restoration
8.3. explanation describes the benefits of at least three types of indirect restorations (choose from crowns, inlays, bridges, dentures, partials, or porcelain)
8.4. explanation describes how the impression is used to create a cast and how the cast is used to create a restoration
8.5. explanation describes the fabrication procedure and timeline for at least three types of indirect restorations (choose from crowns, inlays, bridges, dentures, partials, or porcelain)
8.6. you use language that the patient understands, defining technical terms as needed
8.7. you check for patient understanding
8.8. you respond to questions with accurate and truthful information
8.9. patient's records show accurate, up-to-date documentation of services

Learning Objectives

8.a. Use dental terminology related to dental laboratory procedures appropriately
8.b. Describe the disinfection process used on incoming laboratory cases
8.c. Describe the preparation procedures used for incoming laboratory cases
8.d. Describe the steps of denture fabrication
8.e. Describe the steps of the casting process
8.f. Describe the types of alloys used to fabricate all metal, ceramometal crowns and partial denture framework
8.g. Describe the types of porcelain used in prosthodontics
8.h. Describe the steps of fabricating a porcelain restoration

Course Learning Plans and Performance Assessment Tasks

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<td>Course</td>
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<td>LP</td>
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