

Course Description**DES0103L | Dental Materials Lab | 3.00 credits**

This course provides a study of the properties, manipulation, and care of materials used in the prevention and treatment of oral disease. It will include the study of physical, mechanical, chemical, and biological characteristics of materials.

Course Competencies

Competency 1: The student will demonstrate knowledge of restorative and esthetic dental material by:

1. Describing the uses, properties and manipulation of dental materials used in restorative, prosthetic, preventative, and other dental specialties
2. Identifying the correct equipment used to manipulate restorative and esthetic dental materials
3. Discussing the chemical, physical, and biological properties of various dental materials

Competency 2: The student will demonstrate knowledge of dental liners, bases, and bonding systems by:

1. Describing the manipulation of dental cements, bases, liners, and amalgam in relation to restorative dentistry
2. Differentiating between the different types of dental cements
3. Identifying the correct equipment used to place dental liners, bases, and bonding

Competency 3: The student will demonstrate knowledge of laboratory material and procedures by:

1. Describing the materials used with taking dental impressions
2. Explaining the different types of casting material used to make a study cast
3. Identifying the materials used to fabricate study models, custom impressions tray an athletic mouth guard
4. Demonstrating how to fabricate a whitening tray using a vacuum former
5. Listing the steps in construction of the whitening tray and identifying the equipment and materials used
6. Describing the pre-bleaching protocol for an in- office whitening
7. Listing the difference between hydrogen peroxide and carbamide peroxide whitening solutions
8. Demonstrating the steps in isolating oral tissues prior to using an in-office whitening procedure

Competency 4: The student will demonstrate knowledge, comprehension, fabrication, and application of temporary crowns by:

1. Properly mixing and manipulating acrylic resin to create a temporary crown
2. Polishing and fitting a temporary crown on a typodont
3. Describing reasons for placing a temporary crown
4. Describing the materials used to construct a temporary crown
5. Describing the steps to fabricating a temporary crown with acrylic resin
6. Listing important aspects to consider when making a temporary crown
7. Identifying the various ways to make temporary crowns

Competency 5: The student will demonstrate knowledge, comprehension, and application for shade taking of a tooth by:

1. Demonstrating how to take a shade on a student partner using a shade guide
2. Explaining the steps to taking a shade for a whitening procedure
3. Describing which factors must be controlled before taking a shade of a tooth
4. Describing the most common tooth shade hues used in a porcelain shade guide

Competency 6: The student will demonstrate knowledge, comprehension, and application of finishing and polishing of a composite restoration by:

1. Demonstrating the finishing of a composite on a typodont using finishing disks, finishing strips and burs
2. Discussing the polishing of a composite restoration using abrasive disks, points and/or cups using a smooth, deliberate, and intermittent brush stroke

Competency 7: The student will demonstrate knowledge, comprehension, and application of the whitening liquid dam by:

1. Discussing the purpose of applying the liquid dam on an in-office dental whitening procedure
2. Explaining which factors must be controlled before applying the liquid dam
3. Demonstrating proficiency in the application of the whitening liquid dam on a patient
4. Identifying the steps to ensure proper placement of the whitening liquid dam

Competency 8: The student will demonstrate knowledge, comprehension, and application of the use of infection control and safety in the dental office when handling dental materials by:

1. Identifying the types of personal protective equipment used in a dental operator and laboratory setting
2. Recalling methods used to prevent cross-contamination during the handling and distribution of dental materials and supplies
3. Listing office and laboratory housekeeping practices that contribute to infection control and personal and patient safety
4. Describing effective ways to manage contamination caused by aerosols and splatter during patient treatment
5. Describing ways to prevent injuries when using lathes, model trimmers, a vacuum former, and flammable materials
6. Identifying locations of the eyewash stations/shower in the lab room
7. Describing precautions when working with mercury
8. Identifying recommended sterilization/disinfection methods for dental lab items (impression trays, bowls, burs, polishing wheels, stones)
9. Describing recommended disinfectants for impression materials (alginate, silicone, polyether, polysulfide, ZOE paste, alginate, wax bites)
10. Identifying the various mixing spatulas used for alginates and gypsum
11. Describing the proper way to dispense powder and liquid dental materials

Competency 9: The student will demonstrate knowledge and comprehension of finishing and polishing of a composite restoration by:

1. Identifying when it is appropriate for a dental assistant to perform polishing of a composite per the remedial task delegated to dental assistant
2. Identifying appropriate polishing materials – burnishers, slow-speed hand pieces, rubber cups, and bristle brushes
3. Demonstrating the polishing of a composite on a typodont

Competency 10: The student will demonstrate knowledge, comprehension, and application of the use of infection control and safety in the dental office when handling dental materials by:

1. Identifying the types of personal protective equipment used in a dental operator and laboratory setting
2. Identifying methods used to prevent cross-contamination during the handling and distribution of dental materials and supplies
3. Listing office and laboratory housekeeping practices that contribute to infection control and personal and patient safety
4. Describing effective ways to manage contamination caused by aerosols and splatter during patient treatment
5. Describing ways to prevent injuries when using lathes, model trimmers, a vacuum former, and flammable materials
6. Identifying the locations of the eyewash stations/ shower in the lab room
7. Identifying recommended sterilization/disinfection methods for dental lab items (impression trays, bowls, bur, polishing wheels, stones)

8. Describing recommended disinfectants for impression materials (alginate, silicone, polyether, polysulfide, ZOE paste, alginate, wax bites)
9. Identifying the various mixing spatulas used for alginates and gypsum
10. Describing the proper way to dispense powder and liquid dental materials

Learning Outcomes:

- Solve problems using critical and creative thinking and scientific reasoning
- Formulate strategies to locate, evaluate, and apply information
- Demonstrate an appreciation for aesthetics and creative activities