South Central College

DA 1815 Dental Materials

Course Outcome Summary

Course Information

Description: This course is designed to give students in-depth knowledge in dental material usage, manipulation, properties and purposes. The course includes both didactic and laboratory instruction for various material types including gypsum, impression materials, waxes, cements and restorative materials. Safety in handling materials will be emphasized in laboratory. (Prerequisites: DA 1811, DA 1812)

Total Credits: 3.00
Total Hours: 64.00

Types of Instruction

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<td>Lecture</td>
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Pre/Corequisites

Pre-Requisites: DA 1811 Dental Science I, DA 1812 Oral Anatomy

Institutional Core Competencies

Critical and creative thinking: Students will develop the disposition and skills to strategize, gather, organize, create, refine, analyze, and evaluate the credibility of relevant information and ideas.

Ethical reasoning and action: Students will develop ethical and social responsibility to self and others, and will collaborate with others to address ethical and social issues in a sustainable manner.

Foundations and skills for lifelong learning: Students will display an understanding of learning as a lifelong process through demonstration of a desire to learn, the willingness to apply learning to other areas of their lives, the ability to think and act independently, be willing to take the initiative to get projects done, and demonstrate the ability to reflect upon what has occurred and how it impacts the student and others.

Teamwork and problem-solving: Students will demonstrate the ability to work together cohesively with diverse groups of persons, including working as a group to resolve any issues that arise.

Course Competencies

1. Explain basic aspects of dental materials

Learning Objectives
2. **Explain the oral environment and patient considerations**

   **Learning Objectives**
   - Name the classifications of dental materials
   - Describe the importance of biocompatibility and biomechanics with dental materials
   - Define galvanism, retention, and microleakage

3. **Summarize the physical and mechanical properties of dental materials**

   **Learning Objectives**
   - Define primary and secondary bonds
   - List the three states of matter
   - Describe application, composition, reaction, and manipulation

4. **Describe the handling and safety of dental materials**

   **Learning Objectives**
   - List personal protective measures when using dental materials
   - Define acute and chronic chemical toxicity
   - Recall infection control protocol in the dental laboratory

5. **Identify the principles of bonding systems and materials**

   **Learning Objectives**
   - Describe the preparation for bonding
   - State the clinical applications of bonding
   - Explain bonding systems and their uses

6. **Classify composites, glass ionomers, and compomers**

   **Learning Objectives**
   - Define the components, classifications, and properties of the materials
   - Identify matrix systems used with these materials
   - List the steps for use of these materials

7. **Describe dental ceramics**

   **Learning Objectives**
   - List the physical and mechanical properties of dental ceramics
   - Name the techniques to process dental ceramics into a cast restoration
   - Identify proper clinical application techniques, including shade selection

8. **Explain dental amalgam**

   **Learning Objectives**
   - List the alloys used in dental amalgam
   - Define tarnish, corrosion, and creep when involving dental amalgam
   - State the manipulation and use of dental amalgam
   - Describe the matrix systems used with dental amalgam

9. **Summarize casting metals, solders, and wrought metal alloys**

   **Learning Objectives**
   - Describe how the metals are used in dentistry
   - List the uses of wrought metal alloys in orthodontics
   - Identify the compatibility of the metals in the oral setting

10. **Identify the uses for abrasion, finishing, and polishing**

    **Learning Objectives**
    - Describe the procedures where abrasion, finishing, and polishing would be utilized
    - List the instruments and materials used for abrasion, finishing, and polishing
    - Recognize different dental materials when choosing a method of abrasion, finishing, and polishing
11. **Describe various dental cements**
   Learning Objectives
   - List the uses of dental cements
   - Describe the properties of dental cement
   - Define the manipulation technique for each cement
   - Identify the appropriate storage for dental cements

12. **Summarize impression materials used in dentistry**
   Learning Objectives
   - Describe the types and properties of impression materials
   - Identify impression trays used in the process of taking dental impressions
   - Describe digital impressions and their use

13. **Identify gypsum and wax materials**
   Learning Objectives
   - List the uses of gypsum and wax materials for dentistry
   - State the classifications of gypsum and wax materials
   - Describe the manipulation of gypsum and wax materials
   - Define the composition and properties of gypsum and wax materials

14. **Explain the use of polymers for prosthetic dentistry**
   Learning Objectives
   - Identify polymer formation and the properties
   - Describe custom trays and their use
   - List the uses of polymers for denture treatment

15. **Prepare various impression materials**
   Learning Objectives
   - Demonstrate the use of elastomeric and elastic impression materials
   - Apply proper disinfection protocols
   - Produce bite registration
   - Construct custom tray with thermo-plastics

16. **Demonstrate gypsum material**
   Learning Objectives
   - Manipulate plaster for casts
   - Produce models with dental stone
   - Apply correct manipulation methods for gypsum materials

17. **Practice the use of restorative materials**
   Learning Objectives
   - Demonstrate the proper method of manipulation for amalgam
   - Prepare resin materials for restorative procedures
   - Choose proper matrix system for restorative procedures
   - Demonstrate knowledge of how to use the various matrix systems

18. **Manipulate dental cements**
   Learning Objectives
   - Show the correct measurements for various dental cements
   - Demonstrate proper mixing techniques for various dental cements
   - Apply proper method of cleaning mixing instruments

19. **Apply Bloodborne Pathogens standards**
   Learning Objectives
   - Discuss hazardous waste protocol
   - Incorporate Bloodborne Pathogen standard in labs
   - Implement Hazardous Waste protocol
Utilize Bloodborne Pathogen exposure prevention methods

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Additional information and forms can be found at: [www.southcentral.edu/disability](http://www.southcentral.edu/disability)

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