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
Total Hours 64

Types of Instruction

<table>
<thead>
<tr>
<th>Instruction Type</th>
<th>Credits/Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>2/32</td>
</tr>
<tr>
<td>Laboratory</td>
<td>1/32</td>
</tr>
</tbody>
</table>

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

Institutional Core Competencies
Critical and Creative Thinking - Students will be able to demonstrate purposeful thinking with the goal of using a creative process for developing and building upon ideas and/or the goal of using a critical process for the analyzing and evaluating of ideas.

Course Competencies

1. Explain basic aspects of dental materials
   Learning Objectives
   - List the agencies that control standards of dental materials
   - Identify historical development and evidence based history
   - Define important terms involving dental materials

2. Explain the oral environment and patient considerations
   Learning Objectives
   - Name the classifications of dental materials
   - Describe the importance of bichromatibility and biomechanics with dental materials
   - Define galvanism, retention, and microlakage
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

SCC Accessibility Statement
South Central College strives to make all learning experiences as accessible as possible. If you have a disability and need accommodations for access to this class, contact the Academic Support Center to request and discuss accommodations. North Mankato: Room B-132, (507) 389-7222; Faribault: Room A-116, (507) 332-7222.
Additional information and forms can be found at: [www.southcentral.edu/disability](http://www.southcentral.edu/disability)

This material can be made available in alternative formats by contacting the Academic Support Center at 507-389-7222.