



South Central College

DA 1815 Dental Materials

Common Course Outline

Course Information

Description	This course is designed to give students fundamental knowledge in dental materials, their purpose, composition, manipulation, properties, purposes, and storage as utilized in the dental practice and laboratory setting. 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

Instruction Type	Credits/Hours
Lecture	2/32
Laboratory	1/32

Pre/Corequisites

Prerequisite DA 1811, DA 1812

Institutional Core Competencies

Communication - Students will be able to demonstrate appropriate and effective interactions with others to achieve their personal, academic, and professional objectives.

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 the oral environment and patient considerations

Learning Objectives

- Describe the clinical requirements of therapeutic and restorative dental materials
- Describe the oral environment and clinical considerations in relationship to dental materials
- Describe bio-compatibility, patient safety, and infection control measures with dental materials
- Discuss dental material selection criteria

2. Identify bio-materials properties, handling criteria, and safety considerations

Learning Objectives

Explain the states of matter, its physical structure, and defining characteristics
Describe the dental material classifications, methods, and usage
Explain dental material physical properties and their interrelationships
Describe dental material long-term/short-term effects, clinical significance, and requirements
Describe safe handling procedures of dental materials

3. Identify the principles of bonding systems and materials

Learning Objectives

Define primary and secondary bonding principles and properties
Explain dental material mechanical, chemical, and physical bonds and retention
Describe adhesion and cohesion properties, contributing factors, and practical application

4. Describe dental ceramics, cast, and wrought materials

Learning Objectives

Describe dental restoration types, alloy types, and selection criteria
Define ceramic metamorphism, shade taking, chroma, value, and hue
Explain fabrication methods, CAD/CAM technology, and common failures

5. Describe primary restorative dental materials

Learning Objectives

Identify esthetic and amalgam restorative materials, functions, and composition
Explain dental material clinical selection criteria, indications, and contraindications
Explain restorative dental material advantages and disadvantages

6. Identify the uses for abrasion, finishing, and polishing

Learning Objectives

Describe the purpose of and 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

7. 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

8. 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

9. 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

10. 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

11. 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

12. Define dental material terminology

Learning Objectives

Define specific dental material terminology
Demonstrate correct terminology usage

13. Identify dental material historical developments and contributors

Learning Objectives

Review historical development of dental materials
Identify individuals and their contributions to dental material development
Explain dental material importance, standards, agencies, and requirements
Explain consumer product information and the American Dental Association (ADA) seal requirements

14. Select appropriate dental material armamentarium, equipment, and supplies

Learning Objectives

Identify essential equipment and supplies needed for dental material procedures
Explain appropriate equipment utilization, function, and safety features
Demonstrate correct equipment utilization and storage

15. Demonstrate laboratory competencies

Learning Objectives

Demonstrate accurate dental materials usage
Complete pouring and trimming dental gypsum product procedures and competencies
Complete required dental impressions, bite registrations, and custom tray procedures and competencies
Demonstrate correct dental cement manipulation, application, and competencies
Demonstrate correct bonding principles and clinical applications of dental materials
Demonstrate manipulation and placement of amalgam and esthetic dental restorative materials

16. Demonstrate dental material standard operating procedures and processes

Learning Objectives

Demonstrate correct application of dental materials
Demonstrate standard operating procedures utilizing dental materials
Complete laboratory and clinical dental material procedures