**DH 76 Course Outline as of Fall 2023**

# CATALOG INFORMATION

Dept and Nbr: DH 76 Title: DENT MATRLS FOR DENT HYG
Full Title: Dental Materials for the Dental Hygienist
Last Reviewed: 11/28/2022

| Units | | Course Hours per Week | | Nbr of Weeks | Course Hours Total | |
|---|---|---|---|---|---|---|
| Maximum | 2.00 | Lecture Scheduled | 1.00 | 17.5 | Lecture Scheduled | 17.50 |
| Minimum | 2.00 | Lab Scheduled | 3.00 | 17.5 | Lab Scheduled | 52.50 |
| | | Contact DHR | 0 | | Contact DHR | 0 |
| | | Contact Total | 4.00 | | Contact Total | 70.00 |
| | | Non-contact DHR | 0 | | Non-contact DHR | 0 |

Total Out of Class Hours: 35.00 Total Student Learning Hours: 105.00

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| Title 5 Category: | AA Degree Applicable |
| Grading: | Grade Only |
| Repeatability: | 00 - Two Repeats if Grade was D, F, NC, or NP |
| Also Listed As: | |
| Formerly: | |

**Catalog Description:**
In this course, students will learn a base knowledge in the science of dental materials and the clinical application of dental materials and their relationship to the oral environment within the scope of current practice of dental hygiene.

**Prerequisites/Corequisites:**
Course Completion of DH 70 and DH 71A

**Recommended Preparation:**

**Limits on Enrollment:**
Acceptance to Allied Dental Program

**Schedule of Classes Information:**
Description: In this course, students will learn a base knowledge in the science of dental materials and the clinical application of dental materials and their relationship to the oral environment within the scope of current practice of dental hygiene. (Grade Only)
Prerequisites/Corequisites: Course Completion of DH 70 and DH 71A
Recommended:
Limits on Enrollment: Acceptance to Allied Dental Program

Transfer Credit: CSU;
Repeatability: Two Repeats if Grade was D, F, NC, or NP

## ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

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|---|---|---|---|---|---|
| **AS Degree:** | **Area** | | | Effective: | Inactive: |
| **CSU GE:** | **Transfer Area** | | | Effective: | Inactive: |
| **IGETC:** | **Transfer Area** | | | Effective: | Inactive: |
| **CSU Transfer:** | Transferable | Effective: | Fall 1999 | Inactive: | |
| **UC Transfer:** | | Effective: | | Inactive: | |

**CID:**

**Certificate/Major Applicable:**
Major Applicable Course

## COURSE CONTENT

**Student Learning Outcomes:**
At the conclusion of this course, the student should be able to:
1. Describe the principles and properties of dental materials and the rationale for their use.
2. Apply the knowledge of these principles through clinical and laboratory procedures.

**Objectives:**
At the conclusion of this course, the student should be able to:
1. Identify the physical, mechanical, chemical and biological properties of dental materials and their biocompatibility with the oral tissues.
2. Perform selective coronal polish procedures for the removal of stains and soft deposits.
3. Identify the components of polishing and abrasives in dentistry and distinguish between finishing, polishing, and cleansing.
4. Describe the advantages and disadvantages of the different impression materials and demonstrate the clinical technique on taking alginate impressions.
5. Describe the physical properties important to model and die materials and demonstrate proper pouring and separation of a cast using gypsum material.
6. Describe the uses, properties, and manipulation of direct metal and esthetic restorative materials, and identify their components including composites, and dental amalgam, advantages and disadvantages.
7. Compare the ingredients of in-office and home whitening agents and indicate the type of dental stains for which whitening techniques may be effective.
8. Demonstrate the method of whitening tray fabrication including patient instructions.
9. Describe the clinical success of sealants, list the steps involved, and demonstrate application of sealants on student partner.
10. Identify the uses of cements in dentistry for medication, bases, luting agents, restorative agents, and build-up.
11. Describe the difference between metals, alloys, and ceramics used in dentistry today, and how they differ in composition, physical properties, optical properties, and clinical applications.
12. Identify materials used in dental implants, as well as types, and the use of digital imaging technology.

13. Identify components and materials used for fixed and removable restorations and orthodontic appliances including polymers and indications for their use.
14. Discuss the science behind partial caries removal and minimal invasive dentistry as it relates to the placement of interim therapeutic restorations.

**Topics and Scope:**

I. Characteristics, Principles, and Properties of Dental Materials
- A. Structure of materials
- B. Physical characteristics
- C. Mechanical characteristics
- D. Biologic characteristics
- E. Considerations related to health and safety
- F. Biocompatibility

II. Dental Stains and Coronal Polish
- A. Types of stains
- B. Causes of stains
- C. Technique
- D. Selective coronal polish
- E. Indications and contraindications

III. Finishing, Polishing, and Cleansing Materials
- A. Abrasive
- B. Factors affecting abrasion
- C. Finishing and polishing direct restorations

IV. Impression and Gypsum Materials
- A. Uses in dentistry
- B. Composition of alginate and gypsum
- C. Procedures for obtaining an alginate impression
- D. Procedures for pouring and alginate impression
- E. Infection control protocol

V. Metal and Esthetic Restorative Materials
- A. Identification
- B. Polymerization reaction
- C. Clinical applications
- D. Properties of dental amalgam
- E. Uses of dental amalgam

VI. Dental Whitening Systems
- A. Uses
- B. Indications and contraindications
- C. In-office versus home systems
- D. Fabrication of a whitening tray
- E. Patient instructions

VII. Indications and Contraindications for Sealants
- A. Application principles and methods
- B. Tooth selection
- C. Comparison of sealant systems
- D. Isolation and drying
- E. Application and patient instructions

VIII. Dental Cements
- A. Uses
- B. Types
- C. Handling and placement

D. Characteristics
E. Indications

IX. Fixed and Removable Restorations and Orthodontic Appliances
A. Procedures
B. Alloys
C. Ceramics
D. Identification
E. Components
F. Care implications

X. Dental Implants
A. Definition
B. Types
C. Indications

XI. Interim Therapeutic Restorations
A. Instruments and material used
B. Handling of materials
C. Preparation of teeth
D. Conditioning
E. Placement of material
F. Post application inspection

XII. Laboratory Competencies
A. Perform coronal polish on student partner
B. Perform alginate impression technique on student partner
C. Produce a study model from alginate impression
D. Produce a whitening tray from study model
E. Polish amalgam and composite restorations on a typodont
F. Demonstrate the care of removable appliances
G. Perform sealant techniques on typodonts and student partners
H. Perform interim therapeutic restorations on typodonts

All topics are covered in the lecture and lab portions of the course.

**Assignment:**

Lecture Assignments:
1. Reading (15-30) pages per week
2. Quizzes (8-10)
3. Exams (midterm and final)

Laboratory Assignments:
1. Lab exercises (8-10)
2. Lab assignments (8-10)
3. Performance Lab exam

**Methods of Evaluation/Basis of Grade:**

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

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| Lab assignments | Writing<br>10 - 20% |

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

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| None | Problem solving<br>0 - 0% |

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

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| Lab exercises; performance lab exam | Skill Demonstrations<br>30 - 40% |

**Exams:** All forms of formal testing, other than skill performance exams.

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| Quizzes; exams | Exams<br>45 - 60% |

**Other:** Includes any assessment tools that do not logically fit into the above categories.

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| None | Other Category<br>0 - 0% |

**Representative Textbooks and Materials:**
Dental Materials, Foundations and Applications,  Powers, Wataha. Elsevier, 11th Edition, 2017
Dental Hygiene, Theory and Practice. Darby and Walsh. Elsevier, Elsevier, 5th Edition, 2020
Modern Dental Assisting. Bird, Doni and Robinson, Debbie. Elsevier. 13th Edition, 2021
Instructor prepared materials