

Prepared by: E. Hershkowitz
Reviewed by: S. Eastman
Reviewed by: D. Champion
Reviewed by: S. Jennings
Reviewed by: G. Golling
Date prepared: Spring 2015
Text update: 2016

Dental Hygiene (DNLT) 2132 Dental Materials (2 Units) CSU
[formerly Dental Hygiene 32]

Prerequisite: Successful completion of all first and second semester Dental Hygiene Program courses with a grade of “C” or better

Advisory: None

Total Hours: 32 hours lecture; 11 hours lab (43 total hours)

Catalog Description: This course covers the properties and use of various dental materials and how they impact dental hygiene procedures and oral health. The utilization of dental materials for registered dental hygienists is emphasized.

Type of Class/Course: Degree Credit

Text:

Hattrick, Carol Dixon, W. Stephan Eakle, and William F. Bird. *Dental Materials – Clinical Applications for Dental Assistants and Dental Hygienists*. 3rd ed. St. Louis: Saunders-Elsevier, 2016. Print.

Additional Required Materials: None

Course Objectives and Goals:

By the end of the course, a successful student will be able to:

1. understand the basic physical properties of dental restorative materials and the rationale and effectiveness of their use,
2. understand the relationship between dental materials and the oral environment,
3. demonstrate the ability to mix impression materials and cements to proper consistency within the working time,
4. take an accurate alginate impression and fabricate a study model trimmed to standard dimensions,
5. describe and demonstrate the appropriate method for polishing amalgam restorations,
6. fabricate and place a provisional restorations on a typodont,
7. discuss dental resins and their uses in dentistry,
8. discuss the indications/contraindications in the placement of interim therapeutic

restorations and the proper techniques for placement as specified by the Dental Hygiene Committee of California

9. demonstrate placement of interim therapeutic restorations

Course Scope and Content: (Lecture)

- Unit I Introduction to Dental Materials
 - A. Role of the Allied Oral Health Practitioner and Dental Materials
 - B. Evidence-Based Decision Making
 - C. Historical Development of Dental Materials
 - D. Agencies Responsible for Standards

- Unit II Oral Environment and Patient Considerations
 - A. Biocompatibility
 - B. Biomechanics
 - C. Force and Stress
 - D. Moisture and Acid Levels
 - E. Galvanism
 - F. Temperature
 - G. Retention
 - H. Microleakage
 - I. Esthetics
 - J. Detection of Restorative Materials

- Unit III Physical Properties of Dental Materials
 - A. Physical Structure
 - B. Application
 - C. Composition
 - D. Reaction
 - E. Manipulation

- Unit IV General Handling and Safety
 - A. Materials Hazards in the Dental Environment
 - B. Chemical Safety in the Dental Office
 - C. Acute and Chronic Chemical Toxicity
 - D. Personal Chemical Protection
 - E. Control of Chemical Spills
 - F. General Precautions for Storing Chemicals
 - G. Disposal of Chemicals
 - H. Occupational Safety and Health Administration (OSHA) Hazard Communication Standard
 - I. Bio-Aerosols in the Dental Setting
 - J. Patient Safety

- Unit V Principles of Bonding
 - A. Basic Principles of Bonding
 - B. Clinical Applications of Bonding

- Unit VI Composites, Glass Ionomers and Compomers
A. Composite Resin and Other Direct-Placement Esthetic Restorative Materials
B. Indirect-Placement Esthetic Restorative Materials
- Unit VII Preventive and Bleaching Materials
A. Fluoride
B. Pit and Fissure Sealants
C. Desensitizing Agents
D. Sports Guards and Bruxism Guards (Splints)
E. Teeth Bleaching
- Unit VIII Dental Ceramics
A. Dental Ceramics (Porcelain)
B. Shade Taking
- Unit IX Dental Amalgam
A. Composition
B. Properties
C. Utilization
- Unit X Casting Metals, Solders, Wrought Metal Alloys
A. Casting Alloys
B. Solders
C. Wrought Metal Alloys
D. Metals Used in Orthodontics
E. Endodontic Posts
- Unit XI Dental Implants
A. Implant Materials
B. Types and Utilization
- Unit XII Abrasion, Finishing and Polishing
A. Finishing and Polishing
B. Finishing and Polishing Procedures
C. Polishing During an Oral Prophylaxis (Coronal Polish)
D. Safety/Infection Control
E. Patient Education
- Unit XIII Dental Cement
A. Uses of Dental Cements
B. Properties of Dental Cements
C. Manipulation
D. Dental Cements
- Unit XIV Impression Materials
A. Impression Trays

- B. Elastic Impression Materials
- C. Inelastic Impression Materials
- D. Disinfecting Impressions

- Unit XV Gypsum Products
- A. Properties and Behaviors of Gypsum Products
 - B. Classification of Gypsum Products
 - C. Manipulation

- Unit XVI Polymers for Prosthetic Dentistry
- A. Review of Polymer Formation
 - B. Acrylic Resins (Plastics)
 - C. Denture Liners
 - D. Plastic (Acrylic) Teeth
 - E. Characterization of Dentures
 - F. Plastics for Maxillofacial Prostheses
 - G. Denture Repair
 - H. Custom Impression Trays and Record Bases
 - I. Care of Acrylic Resin Dentures

- Unit XVII Provisional Restorations
- A. Dental Procedures That May Require Provisional Coverage
 - B. Criteria for Provisional Coverage
 - C. Properties of Provisional Materials
 - D. Provisional Materials
 - E. Intracoronary Cement Provisionals
 - F. Interim Therapeutic Restorations
 - G. Patient Education

- Units XVIII Dental Waxes
- A. Composition and Properties
 - B. Classification of Waxes
 - C. Manipulation
 - D. Lost Wax Technique

Course Scope and Content (Laboratory):

- Unit I Preventive Materials
- A. Placement of Sealants
 - B. Application of Fluoride Varnish

- Unit II Impressions and Gypsum Materials
- A. Alginate Impressions
 - B. Study Model Fabrication
 - C. Study Model Trimming
 - D. Fabrication of Bleaching Trays

- Unit III Abrasion/Polishing
 - A. Polishing Compounds
 - B. Amalgam Polishing

- Unit IV Dental Cements
 - A. Types/Uses
 - B. Manipulation

- Unit V Interim Restorations
 - A. Placement of rubber dam
 - B. Placement of matrix and wedge
 - C. Glass Ionomer Interim Therapeutic Restorations
 - D. Placement of Zinc Oxide Eugenol Provisional Restoration
 - E. Fabrication of Tin/Silver Molar Provisional Crown

Learning Activities Required Outside of Class:

The students in this class will spend a minimum of 4 hours per week outside of the regular class time doing the following:

1. Independent study and assigned reading
2. Completion of laboratory assignments for the final project

Methods of Instruction:

1. Laboratory exercises
2. Lecture and audio-visual presentations
3. Class discussions
4. Demonstrations of laboratory procedures.
5. Manipulation of actual dental materials discussed in lecture.

Methods of Evaluation:

1. Examinations and quizzes, including:
 - a. multiple choice questions
 - b. matching questions
 - c. true/false questions

2. Performance evaluation of laboratory assignments and final project (Study models).

Laboratory Category: Extensive Laboratory

Pre delivery criteria: All of the following criteria are met by this lab.

1. Curriculum development for each lab.
2. Published schedule of individual laboratory activities.
3. Published laboratory activity objectives.
4. Published methods of evaluation.

- Supervision of equipment maintenance, laboratory setup, and acquisition of lab materials and supplies.

During laboratory activity of the laboratory: All of the following criteria are met by this lab.

- Instructor is physically present in lab when students are performing lab activities.
- Instructor is responsible for active facilitation of laboratory learning.
- Instructor is responsible for active delivery of curriculum.
- Instructor is required for safety and mentoring of lab activities.
- Instructor is responsible for presentation of significant evaluation.

Post laboratory activity of the laboratory: All of the following criteria are met by this lab.

- Instructor is responsible for personal evaluation of significant student outcomes (lab exercises, exams, practicals, notebooks, portfolios, etc.) that become a component of the student grade that cover the majority of lab exercises performed during the course.
- Instructor is responsible for supervision of laboratory clean up of equipment and materials.

Supplemental Data:

TOP Code:	124020: Dental Hygienist
SAM Priority Code:	C: Clearly Occupational
Distance Education:	Not Applicable
Funding Agency:	Y: Not Applicable(funds not used)
Program Status:	1: Program Applicable
Noncredit Category:	Y: Not Applicable, Credit Course
Special Class Status:	N: Course is not a special class
Basic Skills Status:	N: Course is not a basic skills course
Prior to College Level:	Y: Not applicable
Cooperative Work Experience:	N: Is not part of a cooperative work experience education program



Eligible for Credit by Exam:	NO
Eligible for Pass/No Pass:	NO
Taft College General Education:	NONE