

COURSE INFORMATION

COURSE PREFIX/NO:	DAT 113
COURSE TITLE:	Dental Materials
LECTURE HRS/WK:	3.0
LAB HOURS:	3.0
CREDIT HRS/SEMESTER:	4.0

DL ATTENDANCE/VA STATEMENT TEXTBOOK INFORMATION

COURSE DESCRIPTION

This course is a study of physical and chemical properties of matter, identification and manipulation of dental materials.

LEARNING OBJECTIVES

1. Identify and demonstrate the use and care of dental office laboratory equipment.
2. Demonstrate proper storage and inventory control of dental materials used in the dental office.
3. Define the general physical properties of dental materials.
4. Identify, manipulate, and state the properties of bases and varnishes.
5. Identify, manipulate, and state the properties of the various restorative materials used in operative
6. dentistry.
7. Identify, manipulate, and state the properties of cements used in operative dentistry and dental specialties.
8. Identify, manipulate, and state the properties of dental impression materials and dental waxes.
9. Demonstrate the correct chairside transfer of dental materials.
10. Identify and manipulate gypsum material products to pour and trim study models.
11. Identify and manipulate acrylic material products to construct custom trays and temporary coverings.
12. Identify the different alloys and metals used in construction of dental prosthetics.
13. Discuss the preparation of gold foil for dental restorations.
14. Identify laboratory preparations for casting of dental prosthetics.
15. Discuss the properties and manipulation of porcelains.
16. Identify the various abrasives used in dentistry.
17. Identify and demonstrate the use of the various preventive dental materials available.
18. Adhere to the safety and infection control policies of the dental materials lab. (See Clinic Manual)
19. Demonstrate professionalism in dress, conduct, and attitude.

TEXTS

Materials in Dentistry, Ferracane

REFERRAL TEXT

Modern Dental Assisting, Torres and Ehrich, 6th edition

COURSE REQUIREMENTS

In order to successfully complete DAT 113, the student is required to fulfill the following requirements:

1. attend all lecture and lab sessions
2. complete all reading assignments
3. perform all laboratory performance tasks with a minimum grade of 80.
4. complete all written tests with a minimum grade of 70.
5. turn in all assigned lab projects on due date
6. follow dress code as described in the Dental Assisting Policy Handbook.

METHODS OF INSTRUCTION

Each student will be provided with lesson objectives which correspond with each lecture given by the instructor. The theory will be given in the lecture session to include discussion, and question and answer sessions.

The lab sessions will provide the student with hands-on manipulation and application of the dental materials. The lab instructor will demonstrate the manipulation of the materials and the students will perform the task until satisfactory performance is achieved before proceeding to the next competency.

EVALUATION STRATEGIES

LABORATORY CHECK SHEETS

Students will be evaluated on each task using performance check sheets.

Each student will complete each task in the presence of a laboratory instructor. Each task must be satisfactorily performed to meet the proficiency level for that task before proceeding to the next competency.

REMEDIAL ACTION

Should a student fail to satisfactorily complete a performance task sheet, the student will meet with the laboratory instructor following the laboratory session for remedial work. The student will be re-evaluated on the task or tasks.

ABSENTEEISM

Students who are absent for the lecture and/or lab session must contact the instructor prior to the class. Any student who is absent on a test day, will have ten (10) points deducted from the test grade or lab assignment. Any missed labs in which the student will be checked on a competency, will be made-up at the end of the semester on a designated date. **If a student is absent more than three (3) consecutive days, a doctor's statement will be needed.**

Students are responsible to make an appointment with the Testing Center to set-up a time to take

the test. The student must inform the instructor of the time so that the test can be delivered to the Testing Center prior to the testing appointment.

Any absence in excess of two (2) will be grounds for dismissal from the DAT Program.

PUNCTUALITY

STUDENTS WHO ARE LATE FOR CLASS WILL NOT BE ALLOWED IN THE CLASSROOM UNTIL A BREAK IS GIVEN. THREE TARDIES CONSTITUTES ONE ABSENCE.

GRADING

The final grade for DAT 113 will be determined as follows:

Written tests	50%
Check sheets	20%
Final	<u>30%</u>
	100%

GRADING POLICY

Students must score 80% or better on each laboratory checksheet and 70% or better on each written test.

GRADE SCALE FOR DENTAL ASSISTING COURSES

A - 100-90
B - 89-0 C - 79-70
F - 69-below
I - incomplete

TESTING AND PROFICIENCIES

WRITTEN TESTS:

All tests will be announced one (1) week prior to the testing date. If a student is absent on the day of the test, she/he is to contact the instructor prior to testing time. The student must make an appointment with the Testing Center and inform the instructor of the testing date so that the test may be delivered to the Testing Center prior to the appointment. If the student fails to take the test within one (1) week, the student will receive a zero (0) on that test; however, to verify an understanding of the material, the test must be taken.

LABORATORY COMPETENCY SHEETS:

If a student is absent or does not have her/his competency sheet (no duplicates will be accepted), she/he must make arrangements with the instructor to make-up all lab/clinical competencies. If a student fails to report on the make-up day, a grade of F will be given and the student will be dismissed from the Program.

CONFERENCES

INDIVIDUAL CONFERENCES:

The Dental Assisting Instructors are always available to talk with the student when problems arise. If you have any problems that require the attention of an instructor, do not wait until the problem is insurmountable. If a student must talk with an instructor after school hours, an appointment can be made for that time.

GROUP CONFERENCES:

If problems arise that involve the class, inform the instructor. Time will be set aside to meet with the people involved to remedy the problem.

Do not allow tension to build-up to unsolvable proportions.

PREREQUISITE ACCEPTANCE INTO DAT

PROGRAM COMPETENCY CHECKLISTS

WRITTEN

COMPETENCIES CHECKSHEETS TESTS

Lab Equipment -N/A N/A

Storage of Materials -on going N/A Physical Properties -N/A

Bases & Varnishes -preparation & handling varnish

- mixing calcium hydroxide

Restorative Materials

- manipulation of pre-measured amalgam
- manipulation of proportioned amalgam
- manipulation of acid etching bonding materials, composite

resin: chemical cure

- manipulation of acid etching bonding materials, composite

resin: light cure

Cements

- mixing ZOE - temporary fill
- mixing Zinc Phosphate luting agent
- mixing Zinc Phosphate base
- mixing Zinc polycarboxylate luting agent
- mixing ZOE final
- mixing ZOE base-temporary

- mixing ZOE intermediate restoration
- mixing glass isomer luting agent
- mixing glass isomer luting agent
- mixing Coepack
- mixing Ward's Pack surgical dressing

Impression Materials

- mixing alginate, loading tray, and Waxes taking impression
- mixing light body rubber base, filling syringe
- mixing heavy body rubber base, loading tray
- mixing polyether, loading syringe & tray
- mixing vinyl poly, loading tray

Chairside Application -N/A N/A

Gypsum Products

- mixing Plaster of Paris
- mixing stone edent. model
- pouring edentulous model model in plaster
- model in stone model in stone
- pour study model

Acrylic

- construct custom tray on custom tray edentulous model
- construct temporary cover temp. crown

Dental Alloy -N/A Gold Foil -N/A

Casting -N/A

Dental Porcelain -N/A Abrasives -N/A Preventive Materials -N/A

Infection Control -ongoing N/A

Policy

Professionalism

- lab coat N/A
- hair
- jewelry
- nails
- conduct

DENTAL MATERIALS DAT 113

I. Introduction

- A. Dental Materials
 - 1. history
 - 2. types of materials
 - 3. ADA specifications
- B. Dental Office Laboratory
 - 1. function
 - 2. maintenance
- C. Major Lab Equipment
 - 1. model trimmer
 - 2. bench engine and lab handpiece
 - 3. lathe
 - 4. vibrator
 - 5. vacuform
 - 6. Triad
- D. Accessory Lab Equipment
 - 1. mixing bowls
 - 2. spatulas
 - 3. mixing pads and glass slabs
 - 4. dappen dishes
 - 5. impression trays
 - 6. lab knives
 - 7. graduate cylinders
 - 8. scales
 - 9. syringes
 - 10. dentiforms and models
 - 11. bunsen burner

II. Storage and Inventory of Materials

- A. Importance of storage
- B. Types of inventory

III. Structure and Properties of Dental Materials

- A. Oral Cavity Considerations
 - 1. physical and biological status of oral cavity
 - 2. selection of dental materials
- B. General Characteristics of Matter
 - 1. nature of matter
 - 2. states of matter
 - 3. change in matter
 - 4. classification of matter
- C. Properties of Dental Materials
 - 1. mechanical
 - 2. physical
 - 3. thermal
 - 4. electrical
 - 5. wettability
 - 6. solubility and sorption

IV. Bases and Liners A. Purposes

B. Types

C. Properties

D. Manipulation

V. Amalgam

A. Types

1. precapsulated

2. proportional

B. Uses

C. Components

1. mercury

2. silver

3. tin

4. copper

5. zinc

D. Properties

1. physical

2. mechanical

3. thermal

4. electrical

E. Manipulation

1. equipment

2. technique

F. Mercury Hygiene

VI. Abrasives

A. Definitions, Properties and Rate

B. Categories

1. finishing

2. polishing

3. cleaning

C. Types and Uses

1. diamond

2. sand

3. carborundum

4. pumice

5. prophylactic paste

6. garnet

7. cuttle

8. emery

9. tripoli

10. rouge

11. tin oxide

12. chalk

VII. Preventive Dental Materials

- A. General Purpose
- B. Fluoride Gels
 - 1. Purpose
 - 2. properties
 - 3. manipulation

VIII. Pit and Fissure Sealants

- A. Purpose
- B. Types
- C. Properties
- D. Manipulation
- E. Failure of Sealants

IX. Impression Materials and Waxes

- A. Impression Materials
 - 1. types
 - 2. uses
 - 3. general properties
- B. Alginate
 - 1. uses
 - 2. properties
 - 3. composition
 - 4. manipulation
- C. Waxes
 - 1. types
 - 2. uses
 - 3. composition
 - 4. properties
 - 5. manipulation

X. Gypsum Products

- A. General Definition
- B. Classification/Composition
 - 1. Impression Plaster
 - 2. Plaster of Paris
 - 3. Class I stone
 - 4. Class II stone
- C. Properties
 - 1. water/powder ratio
 - 2. setting expansion
 - 3. strength
 - 4. setting time
- D. Uses
 - 1. study models
 - 2. investments
 - 3. dies
 - 4. impressions

XI. Custom Trays

- A. Types
- B. Uses
- C. Composition
- D. Manipulation

XII. Temporary Coverage A. Types

- B. Uses
- C. Composition
- D. Manipulation

XIII. Cements

- A. General Information and Uses
- B. Types
 - 1. zinc phosphate
 - 2. zinc polycarboxylate
 - 3. zinc oxide eugenol
 - 4. glass ionomer
 - 5. zinc silicophosphate
 - 6. periodontal dressings
- C. Composition
- D. Properties
- E. Manipulation

XIV. Esthetic Restorations

- A. Types
- B. Uses
- C. Composition
- D. Properties
- E. Manipulation

XV. Metals

- A. Types
- B. Uses
- C. Characteristics

XVI. Infection Control

- A. Personal Protection
- B. Disinfection and Sterilization of Equipment
- C. Disinfection of Lab Cases