



# **INSTRUCTIONAL PACKAGE**

DAT113  
Dental Materials

Effective Term  
Fall 2023

# INSTRUCTIONAL PACKAGE

## Part I: Course Information

Effective Term: Fall 2023

COURSE PREFIX: DAT113

COURSE TITLE: Dental Materials

CONTACT HOURS: 6

CREDIT HOURS: 4

### **RATIONALE FOR THE COURSE:**

1. Explain the importance of the study of dental materials for the allied oral health practitioner.
2. Explain why it is necessary that the allied oral health practitioner have an understanding of dental materials for the delivery of dental care.
3. Describe and demonstrate the safety measures that are needed to work with various dental materials and lab equipment.
4. Describe the utilization, composition, properties, care and storage, and hazard communication of selected dental materials

### **COURSE DESCRIPTION:**

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

### **PREREQUISITES/CO-REQUISITES:**

#### **PREREQUISITES:**

Admittance into the Expanded Duty Dental Assisting Program

#### **CO-REQUISITES:**

DAT 118 Dental Morphology

DAT 127 Dental Radiography

DAT 154 Clinical Procedures

DAT 174 Office Rotations

### **REQUIRED MATERIALS:**

Please visit the [BOOKSTORE](#) online site for most current textbook information.

Enter the semester, course prefix, number and section when prompted and you will be linked to the correct textbook.

**TECHNICAL REQUIREMENTS:**

Access to Desire2Learn (D2L), HGTC's learning management system (LMS) used for course materials.

Access to myHGTC portal for student self-services.

College email access – this is the college's primary official form of communication.

**STUDENT IDENTIFICATION VERIFICATION:**

Students enrolled in online courses will be required to participate in a minimum of one (1) proctored assignment and/or one (1) virtual event to support student identification verification. Please refer to your Instructor Information Sheet for information regarding this requirement.

**CLASSROOM ETIQUETTE:**

As a matter of courtesy to other students and your professor, please turn off cell phones and other communication/entertainment devices before class begins. If you are monitoring for an emergency, please notify your professor prior to class and switch cell phone ringers to vibrate.

\*Please refer to the HGTC Dental Sciences Program Manual for additional policies on classroom etiquette.

**Part II: Student Learning Outcomes****COURSE LEARNING OUTCOMES and ASSESSMENTS\*:**

1. Describe and demonstrate the safety measures that are needed to work with various dental materials and lab equipment.
2. Describe the utilization, composition, properties, care and storage, and hazard communication of selected dental materials.
3. Upon completion of this course, the student will be able to:
4. Explain the importance of the study of dental materials for the allied oral health practitioner.
5. Explain why it is necessary that the allied oral health practitioner have an understanding of dental materials for the delivery of dental care.
6. Describe and demonstrate the safety measures that are needed to work with various dental materials and lab equipment.
7. Describe the utilization, composition, properties, care and storage, and hazard communication of selected dental materials

**General Education Outcomes:****LECTURE OUTCOMES****Module 1**

**Material Covered:** Ch. 30 Dental Emergency procedures and Dental Cements

**Assessments:** Lab Competencies, Quiz, Unit Test, & Final Exam

**Objectives:**

1. Recognize and Identify key terms in this chapter

2. Discuss cause and emergency treatment options for various oral lesions, trauma and injuries
3. Differentiate between classifications of tooth fractures
4. Describe a cavity preparation form and structure
5. State the guidelines for mixing cements
6. Describe the use, composition, properties, and manipulation considerations of dental cements
7. Describe the steps in preparing for and placing temporary cement restorations

## **Module 2**

**Material Covered:** Ch. 31 Amalgam Procedures and Materials

**Assessments:** Lab Competencies, Quiz, Unit Test, & Final Exam

### **Objectives:**

1. Recognize and Identify key terms in this chapter
2. Discuss dental material properties
3. Recall agencies and organizations regulating dental materials
4. Describe treatment of cavity preparation for placement of dental amalgam
5. Identify the different matrix band systems and their uses
6. List advantages and disadvantages in using dental amalgam as a direct restoration
7. Explain the clinical importance of the properties of amalgam
8. Discuss the indications and contraindications for finishing and polishing amalgam restorations

## **Module 3**

**Material Covered:** Ch. 32 Composite Procedures and Materials

**Assessments:** Lab Competencies, Quiz, Unit Test, & Final Exam

### **Objectives:**

1. Recognize and Identify key terms in this chapter
2. Differentiate among the types of composite resins
3. Explain the purpose of etching and bonding
4. Discuss matrix systems used with composite restorations
5. Describe the composite restoration procedure
6. Recall the types of direct esthetic dental restorations

## **Module 4**

**Material Covered:** Ch.33 Dental Laboratory Materials

**Assessments:** Lab Competencies, Quiz, Unit Test, & Final Exam

### **Objectives:**

1. Recognize and Identify key terms in this chapter
2. Distinguish between alginates and alginate substitutes
3. Describe factors that can influence working and setting time for alginates
4. Explain why an alginate impression must be stored properly
5. Compare and contrast different types of gypsum materials
6. Discuss materials necessary for fabrication of diagnostic casts

7. Explain how excess water affects the manipulation and properties of gypsum materials
8. Identify the use of a dental articulator and facebow for dental casts or study models
9. Identify various classifications and uses of wax in dentistry
10. Identify the differences and similarities in techniques of the common methods of fabricating custom made impression trays
11. Identify the two types of provisional materials
12. Identify properties of provisional materials and indicate their clinical importance

## **Module 5**

**Material Covered:** Ch. 40 Fixed Prosthodontics

**Assessments:** Lab Competencies, Quiz, Unit Test, & Final Exam

### **Objectives:**

1. Recognize and Identify key terms in this chapter
2. State objectives for a fixed prosthodontics
3. Differentiate among the types of fixed prosthodontic restorations
4. Explain patient factors considered in a fixed prosthodontic procedure
5. Discuss the components of the preparation appointment
6. Identify the different methods of gingival retraction and their contraindications
7. Discuss the components of the second treatment appointment
8. Discuss the concerns related to a fixed dental prosthesis
9. Identify the dental hygiene aids used for homecare in regards to a fixed prosthesis

## **Module 6**

**Material Covered:** Ch. 41 Computerized impressions and Restoration Systems

**Assessments:** Lab Competencies, Quiz, Unit Test, & Final Exam

### **Objectives:**

1. Recognize and Identify key terms in this chapter
2. Explain CAD/CAM restorative systems
3. Compare and contrast the advantages and disadvantages of the CAD/CAM technology
4. Explain the role of the dental assistant during CAD/CAM procedures
5. Describe the considerations the patient should be made aware of when using CAD/CAM technology
6. Describe the steps in a CAD/CAM procedure

## **Module 7**

**Material Covered:** Ch. 42 Removable Prosthodontics

**Assessments:** Lab Competencies, Quiz, Unit Test, & Final Exam

### **Objectives:**

1. Recognize and Identify key terms in this chapter
2. Describe the objectives of removable prosthodontic treatment

3. List the types of partial dentures
4. Describe the types of full dentures
5. Discuss each component of the removable partial denture
6. Compare and contrast the indications and contraindications for removable partial dentures
7. Describe each component of the complete denture
8. Compare and contrast the indications and contraindications for full dentures
9. Discuss post delivery care for partial and complete dentures
10. Explain the function of denture adhesives
11. Understand the differences between denture relining and denture rebasing
12. Explain the process of denture repair
13. State the function of denture cleaners

## **Module 8**

**Material Covered:** Ch. 43 Cosmetic Dentistry and Teeth Whitening

**Assessments:** Lab Competencies, Quiz, Unit Test, & Final Exam

### **Objectives:**

1. Recognize and Identify key terms in this chapter
2. Describe the duties and credentialing of the cosmetic dental team
3. Discuss procedures that are included in cosmetic dentistry
4. Explain how teeth are whitened
5. Discuss indications and contraindications in selecting candidates for tooth whitening
6. Describe the procedure for in office whitening of vital and non vital teeth
7. Describe the procedures for at home whitening and over the counter whitening materials
8. Discuss esthetic prostheses that are used in cosmetic dentistry
9. Discuss the role of occlusion in cosmetic dentistry
10. Discuss the role of contouring soft tissue in cosmetic dentistry

## **Module 9**

**Material Covered:** Ch. 26 Dental Sealants

**Assessments:** Lab Competencies, Quiz, Unit Test, & Final Exam

### **Objectives:**

1. Recognize and Identify key terms in this chapter
2. Explain how dental sealants are an important part of a prevention program
3. List indications and contraindications for dental sealants
4. Compare and contrast the types of sealant materials
5. Discuss safety concerns during placement of dental sealants
6. Identify and present the steps in placing a dental sealant
7. Determine the cause of sealant failure

## **Module 10**

**Material Covered:** Ch. 25 Coronal Polishing and Topical Fluoride Application

**Assessments:** Lab Competencies, Quiz, Unit Test, & Final Exam

### **Objectives:**

1. Recognize and Identify key terms in this chapter
2. Identify and understand the different types of polishing procedures
3. Differentiate between intrinsic and extrinsic stain and the cause of each
4. Describe the indications for professional topical fluoride
5. State the types of topical fluoride available for professional use and when each type would be used
6. Discuss indications for use of Silver Diamine Fluoride
7. Recognize the formulation of SDF and distinguish the purpose of each ingredient

## **LAB OBJECTIVES**

### **Lab 1**

#### **Objectives:**

1. Explain initial and final set of gypsum and the factors that affect the setting time, setting expansion, and strength.
2. Explain the procedure for mixing and handling gypsum products to create diagnostic casts.
3. Prepare model plaster or stone for pouring.
4. Pour plaster in edentulous and dentulous molds free of defects

### **Lab 2**

#### **Objectives:**

1. Pour the anatomic portion of maxillary and mandibular diagnostic casts.
2. Pour the base portion of maxillary and mandibular diagnostic casts.
3. Trim maxillary and mandibular diagnostic casts.
4. Fabricate a study model

### **Lab 3**

#### **Objectives:**

1. Demonstrate tray selection, mixing alginate, loading and seating the tray, and removing the impression.
2. Demonstrate the ability to take an acceptable alginate impression.
3. Demonstrate the proper handling of alginate impressions.
4. Apply troubleshooting to problems experienced with alginate impressions.

### **Lab 4**

#### **Objectives:**

1. Make a registration of a patient's bite in centric occlusion

2. Assemble the cartridge of impression material and load into the impression tray.
3. Demonstrate proper disinfection techniques for impression materials and prepare them for transport to the dental laboratory.

### **Lab 5**

#### **Objectives:**

1. List the steps and the procedures for in-office professional whitening.
2. Fabricate home whitening trays.
3. Demonstrate proper enamel shade using a shade guide.
4. Demonstrate the ability to instruct a patient on home whitening.

### **Lab 6**

#### **Objectives:**

1. Apply the mixing technique for 4 types of cement:
  - Glass Ionomer
  - Polycarboxylate
  - Zinc Phosphate
  - Zinc Oxide/Eugenol & Base
2. Assemble and identify the parts of a tofflemire matrix band. Be able to accurately assemble and place on an identified tooth

### **Lab 7**

#### **Objectives:**

1. Apply topical fluoride gel, foam, or vanish correctly
2. List the components of sealant material.
3. Recite the steps for applying sealants.
4. Apply sealants to synthetic teeth.

### **Lab 8**

#### **Objectives:**

1. Describe the safety and infection control precautions taken by the operator when using abrasives.
2. Relate patient education instructions for prevention and removal of stain from tooth surfaces and restorations.
3. Finish and polish a preexisting amalgam restoration.

### **Lab 9**

#### **Objectives:**

1. Demonstrate how to clean a partial or complete dentures.
2. Demonstrate to a patient the home care regimen for both a partial or complete denture.

***\*Students – please refer to the Instructor’s Course Information sheet for specific information on assessments and due dates.***



## Part III: Grading and Assessment

### EVALUATION OF REQUIRED COURSE MEASURES/ARTIFACTS\*:

Students' performance will be assessed and the weight associated with the various measures/artifacts are listed below.

#### EVALUATION\*

|                  |                                 |
|------------------|---------------------------------|
| Lecture          | <u>60% of the overall grade</u> |
| Tests            | 35%                             |
| Quizzes          | 25%                             |
| Discussions      | 10%                             |
| Flipbook project | 10%                             |
| Final Exam       | <u>20%</u>                      |
|                  | 100%                            |

|                   |                                 |
|-------------------|---------------------------------|
| Lab               | <u>40% of the overall grade</u> |
| Competencies      | 60%                             |
| Final Study Model | <u>40%</u>                      |
|                   | 100%                            |

***\*Students, for the specific number and type of evaluations, please refer to the Instructor's Course Information Sheet.***

#### GRADING SYSTEM:

A=90-100

B=80-89

C=77-79

D=70-76

F=69 and below

Grades earned in courses impact academic progression and financial aid status. Before withdrawing from a course, be sure to talk with your instructor and financial aid counselor about the implications of that course of action. Ds, Fs, Ws, WFs and Is also negatively impact academic progression and financial aid status.

The Add/Drop Period is the first 5 days of the semester for **full term** classes. Add/Drop periods are shorter for accelerated format courses. Please refer to the [academic calendar](#) for deadlines for add/drop. You must attend at least one meeting of all of your classes during that period. If you do not, you will be dropped from the course(s) and your Financial Aid will be reduced accordingly.

## Part IV: Attendance

Horry-Georgetown Technical College maintains a general attendance policy requiring students to be

present for a minimum of 80 percent (80%) of their classes in order to receive credit for any course. Due to the varied nature of courses taught at the college, some faculty may require up to 90 percent (90%) attendance. Pursuant to 34 Code of Federal Regulations 228.22 - Return to Title IV Funds, once a student has missed over 20% of the course or has missed two (2) consecutive weeks, the faculty is obligated to withdraw the student and a student may not be permitted to reenroll. **Instructors define absentee limits for their class at the beginning of each term; please refer to the Instructor Course Information Sheet.**

**For online and hybrid courses**, check your Instructor's Course Information Sheet for any required on-site meeting times. Please note, instructors may require tests to be taken at approved testing sites, and if you use a testing center other than those provided by HGTC, the center may charge a fee for its services.

## Part V: Student Resources



### THE STUDENT SUCCESS AND TUTORING CENTER (SSTC):

The SSTC offers to all students the following **free** resources:

1. **Academic tutors** for most subject areas, **Writing Center support**, and **college success skills**.
2. Online **tutoring** and academic support resources.
3. Professional and interpersonal communication **coaching** in the EPIC Labs.

Visit the [Student Success & Tutoring Center](#) website for more information. To schedule tutoring, contact the SSTC at [sstc@hgtc.edu](mailto:sstc@hgtc.edu) or self-schedule in the Penji iOS/Android app or at [www.penjiapp.com](http://www.penjiapp.com). Email [sstc@hgtc.edu](mailto:sstc@hgtc.edu) or call SSTC Conway, 349-7872; SSTC Grand Strand, 477-2113; and SSTC Georgetown, 520-1455, or go to the [Online Resource Center](#) to access on-demand resources.



### STUDENT INFORMATION CENTER: TECH Central

TECH Central offers to all students the following **free** resources:

1. **Getting around HGTC:** General information and guidance for enrollment, financial aid, registration, and payment plan support!
2. Use the [Online Resource Center \(ORC\)](#) including Office 365 support, password resets, and username information.
3. **In-person workshops, online tutorials and more services** are available in Desire2Learn, Student Portal, Degree Works, and Office 365.

4. **Chat with our staff on TECH Talk**, our live chat service. TECH Talk can be accessed on the student portal and on TECH Central's website, or by texting questions to (843) 375-8552.

Visit the [Tech Central](#) website for more information. Live Chat and Center locations are posted on the website. Or please call (843) 349 – TECH (8324), Option #1.



## HGTC LIBRARY:

Each campus location has a library where HGTC students, faculty, and staff may check out materials with their HGTC ID. All three HGTC campus libraries are equipped with computers to support academic research and related school work; printing is available as well. Visit the [Library](#) website for more information or call (843) 349-5268.

## STUDENT TESTING:

Testing in an **online/hybrid** course and in **make-up exam** situations may be accomplished in a variety of ways:

- Test administered within D2L
- Test administered in writing on paper
- Test administered through Publisher Platforms (which may have a fee associated with the usage)

Furthermore, tests may have time limits and/or require a proctor.

Proctoring can be accomplished either face-to-face at an approved site or online through our online proctoring service. To find out more about proctoring services, please visit the [Online Testing](#) section of the HGTC's Testing Center webpage.

The **Instructor Information Sheet** will have more details on test requirements for your course.

## DISABILITY SERVICES:

HGTC is committed to providing an accessible environment for students with disabilities. Inquiries may be directed to HGTC's [Accessibility and Disability Service webpage](#). The Accessibility and Disability staff will review documentation of the student's disability and, in a confidential setting with the student, develop an educational accommodation plan.

Note: It is the student's responsibility to self-identify as needing accommodations and to provide acceptable documentation. After a student has self-identified and submitted documentation of a disability, accommodations may be determined, accepted, and provided.

## STATEMENT OF EQUAL OPPORTUNITY/NON-DISCRIMINATION STATEMENT:

Horry-Georgetown Technical College prohibits discrimination and harassment, including sexual harassment and abuse, on the basis of race, color, sex, national or ethnic origin, age, religion,

disability, marital or family status, veteran status, political ideas, sexual orientation, gender identity, or pregnancy, childbirth, or related medical conditions, including, but not limited to, lactation in educational programs and/or activities.

### **TITLE IX REQUIREMENTS:**

All students (as well as other persons) at Horry-Georgetown Technical College are protected by Title IX—regardless of their sex, sexual orientation, gender identity, part- or full-time status, disability, race, or national origin—in all aspects of educational programs and activities. Any student, or other member of the college community, who believes that he/she is or has been a victim of sexual harassment or sexual violence may file a report with the college’s Chief Student Services Officer, campus law enforcement, or with the college’s Title IX Coordinator or designee.

\*Faculty and Staff are required to report incidents to the Title IX Coordinators when involving students. The only HGTC employees exempt from mandatory reporting are licensed mental health professionals (only as part of their job description such as counseling services).

### **INQUIRIES REGARDING THE NON-DISCRIMINATION/TITLE IX POLICIES:**

**Student and prospective student** inquiries concerning Section 504, Title II, Title VII, and Title IX and their application to the College or any student decision may be directed to the Vice President for Student Affairs.

**Dr. Melissa Batten, VP Student Affairs**

*Title IX, Section 504, and Title II Coordinator*

Building 1100, Room 107A, Conway Campus

PO Box 261966, Conway, SC 29528-6066

843-349-5228

[Melissa.Batten@hgtc.edu](mailto:Melissa.Batten@hgtc.edu)

**Employee and applicant** inquiries concerning Section 504, Title II, and Title IX and their application to the College may be directed to the Vice President for Human Resources.

**Jacquelyne Snyder, VP Human Resources**

*Affirmative Action/Equal Opportunity Officer and Title IX Coordinator*

Building 200, Room 205B, Conway Campus

PO Box 261966, Conway, SC 29528-6066

843-349-5212

[Jacquelyne.Snyder@hgtc.edu](mailto:Jacquelyne.Snyder@hgtc.edu)