



# **INSTRUCTIONAL PACKAGE**

DAT 113  
Dental Materials

Effective Term  
Fall 2024/Spring 2025/Summer 2025

# INSTRUCTIONAL PACKAGE

## Part I: Course Information

Effective Term: Fall 2024

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

\***Online/Hybrid** courses require students to complete the [Distance Learning Orientation Video](#) prior to enrolling in an online course.

### **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

***\*Students – please refer to the Instructor's Course Information sheet for specific***

***information on assessments and due dates.***

## **GENERAL EDUCATION 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 protheses 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. Lecture and Lab need to be passed with a 77% independently of each other to pass the course.

**EVALUATION\***

<b>Lecture</b> 60% of overall grade	Weighted Percentage of Grade
Exams (2)	22%
Quizzes (9)	35%
Discussions (11)	10%
Flipbook project	10%
Final exam	20%
Classroom participation and professionalism	3%

<b>Lab</b> 40% of overall grade	Weighted Percentage of Grade
Competencies (9)	72%
Lab Final	25%
Lab Professionalism	3%

***\*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  
made.

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 [ssc@hgtc.edu](mailto:ssc@hgtc.edu) or self-schedule in the Penji iOS/Android app or at [www.penjiapp.com](http://www.penjiapp.com). Email [ssc@hgtc.edu](mailto:ssc@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.



### 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 Services staff will review documentation of the student's disability and, in a confidential setting with the student, engage in an interactive process to 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. Students will need to reach out to the Accessibility and Disability Services staff each semester to renew their accommodations.

### **COUNSELING SERVICES:**

HGTC Counseling Services strives to optimize student success through managing personal and academic concerns that may interfere with achieving educational goals. Staff are available to every student for assistance and guidance on personal matters, academic concerns and other areas of concern. HGTC offers free in-person and telehealth counseling services to students. For more information about counseling services, please reach out to [counseling@hgtc.edu](mailto:counseling@hgtc.edu) or visit the website the [Counseling Services webpage](#).

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

Horry-Georgetown Technical College shall not discriminate in employment or personnel decisions or in student admissions or in student decisions, or in all other segments of the College community 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 the educational programs and activities which it operates, and the college is prohibited from discrimination in such manner by applicable laws. Practices and requirements for nondiscrimination extend to the enrollment of students in programs and activities of the

College and employment by the College.

All inquiries regarding the federal laws as they relate to discrimination on the basis of sex may be directed to Tamatha Sells, Title IX Coordinator, Horry-Georgetown Technical College, Building 1100C, Room 107B, 2050 Hwy 501 E, PO Box 261966, Conway, SC 29528-6066, 843-349-5218, [tamatha.sells@hgtc.edu](mailto:tamatha.sells@hgtc.edu) or to the US Department of Education Office of Civil Rights. (Telephone: 800-421-3481/Email: [OCR@ed.gov](mailto:OCR@ed.gov)).

Other employee and applicant inquiries concerning the federal laws and their application to the College may be directed to Jacquelyne Snyder, Vice President, Human Resources and Employee Relations & the College's Affirmative Action/Equal Opportunity Officer, Horry-Georgetown Technical College, Building 200C, Room 205B, 2050 Hwy 501 E, PO Box 261966, Conway, SC 29528-6066, 843-349-5212, [jacquelyne.snyder@hgtc.edu](mailto:jacquelyne.snyder@hgtc.edu).

Other student and prospective student inquiries concerning the federal laws and their application to the College or any student decision may be directed to Dr. Melissa Batten, Vice President, Student Affairs, Section 504 & Title II Coordinator Horry-Georgetown Technical College, Building 1100C, Room 107A, 2050 Hwy 501 E, PO Box 261966, Conway, SC 29528-6066, 843-349-5228, [melissa.batten@hgtc.edu](mailto:melissa.batten@hgtc.edu).

### **TITLE IX REQUIREMENTS:**

Title IX of the Education Amendments of 1972 protects students, employees, applicants for admission and employment, and other persons from all forms of sex discrimination.

HGTC prohibits the offenses of domestic violence, dating violence, sexual assault, and stalking and will provide students, faculty, and staff with necessary information regarding prevention, policies, procedures, and resources.

Any student, or other member of the college community, who believes that they have been a victim of sexual harassment, domestic violence, dating violence, sexual assault, or stalking may file a report with the college's Title IX Coordinator or campus law enforcement\*.

\*Faculty and Staff are required to report these incidents to the Title IX Coordinator 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).

For more information, contact Tamatha Sells, Title IX Coordinator, Conway Campus, Building 1100C, Room 107B, 843-349-5218, [tamatha.sells@hgtc.edu](mailto:tamatha.sells@hgtc.edu).

## **PREGNANCY ACCOMMODATIONS**

Under Title IX, colleges must not exclude a pregnant student from participating in any part of an educational program. Horry-Georgetown Technical College is committed to ensuring that pregnant students receive reasonable accommodations to ensure access to our educational programs.

Students should advise the Title IX Coordinator of a potential need for accommodations as soon as they know they are pregnant. It is extremely important that communication between student, instructors, and the Title IX Coordinator begin as soon as possible. Each situation is unique and will be addressed individually.

Title IX accommodations DO NOT apply to Financial Aid. Financial Aid regulations do not give the College any discretion in terms of Financial Aid eligibility.

Certain educational programs may have strict certification requirements or requirements mandated by outside regulatory agencies. Therefore, in some programs, the application of Title IX accommodations may be limited.

To request pregnancy accommodations, please complete the [\*\*Pregnancy Intake Form\*\*](#).