

HGTC

Horry-Georgetown
Technical College

COURSE INSTRUCTIONAL PACKAGE

DAT 113

Dental Materials

Effective Term

Fall 2026

Part I: Course Information

Effective Term: Fall 2026

COURSE PREFIX: DAT 113

COURSE TITLE: Dental Materials

CONTACT HOURS: 6

CREDIT HOURS: 4

RATIONALE FOR THE COURSE:

Allied oral health practitioners must understand dental materials to ensure the safe and effective delivery of dental care. Dental assisting professionals frequently encounter restorative materials, impression materials, preventive agents, and laboratory products. An understanding of the composition, properties, and clinical performance of these materials allows practitioners to make informed decisions, provide patient education, identify potential material failures, and collaborate effectively with dentists and laboratory personnel. This knowledge is critical for maintaining high standards of patient care, safety, and professionalism. Studying dental materials allows practitioners to understand the utilization, composition, physical and mechanical properties, storage requirements, and hazard considerations associated with commonly used products. This knowledge ensures materials are selected, manipulated, stored, and disposed of properly to maximize effectiveness and longevity while minimizing risks.

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

2026-2027

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.

ATTENDANCE VERIFICATION:

The Add/Drop Period is the first 7 days of the semester for **full term** classes. Add/Drop periods are shorter for accelerated format classes. Please refer to the [academic calendar](#) for deadlines for add/drop. You must attend at least one meeting of all 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

STUDENT COURSE EVALUATIONS:

Each semester, students are provided with an opportunity to participate in course evaluation surveys. These evaluations offer crucial feedback to instructors and the College, leading to enhancement of educational quality. By completing these surveys, you play a key role in the ongoing improvement of teaching methods and course content, ensuring future students enjoy a better learning experience. Students are encouraged to complete these surveys as your active participation in this process reflects your dedication to your education and drives positive change.

CLASSROOM ETIQUETTE AND STUDENT RIGHTS AND RESPONSIBILITIES:

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 an emergency, please notify your professor prior to class and switch cell phone ringers to vibrate.

To ensure a positive College experience, guidelines exist in numerous areas of campus life. The Student Code for The South Carolina Technical College System “The Student Code” (3-2-106.1) applies to all HGTC students. The Student Code sets forth rights and responsibilities of the individual student, identifies behaviors that are not consistent with the values of college communities, and describes the procedures that will be followed to adjudicate cases of alleged misconduct. Students are expected to conduct themselves in a civil manner, that is respectful of the rights of others, and that is compatible with the college’s educational mission. Students are expected to comply with all of the college’s duly established rules and regulations regarding student behavior while on campus; while participating in off-campus college sponsored activities; and while participating in off-campus clinical, field, internship, or in-service experiences. Students are expected to comply with all course requirements as specified by instructors in course syllabi and to meet the standards of acceptable classroom behavior set by instructors. For more information, login to your myHGTC account under “Student Rights and Responsibilities” card then select “Student Code of Conduct” or the “Student Catalog and Handbook.”

***Please refer to the HGTC Dental Sciences Program Manual for additional policies on professionalism.**

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

Module 1

Material Covered: Ch. 36 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.39 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

Module 3

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
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 4

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 5

Material Covered: Ch. 46 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
10. Describe the steps in a CAD/CAM procedure

Module 6

Material Covered: Ch. 48 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 7

Material Covered: Ch. 47 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

Module 8

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

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. 49 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

LAB OBJECTIVES

Lab 1

Objectives:

1. Apply the mixing technique for 4 types of cement:
 - Glass Ionomer
 - Polycarboxylate
 - Zinc Phosphate
 - Zinc Oxide/Eugenol & Base

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:

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 varnish 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 60% of overall grade	Weighted Percentage of Grade
Exams	30%
Quizzes	25%
Homework Assignments	20%
Final exam	20%
Classroom participation and professionalism	5%

Lab 40% of overall grade	Weighted Percentage of Grade
Competencies	70%

Lab Final	25%
Lab Professionalism	5%

****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, and Is also negatively impact academic progression and financial aid status.

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 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 course information sheet and the HGTC Dental Sciences Program Manual for additional policies on attendance.**

Part V: Student Resources

THE STUDENT SUCCESS AND TUTORING CENTER (SSTC):



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

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

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

STUDENT INFORMATION CENTER – TECH Central:



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

1. Getting around HGTC: General information and guidance for enrollment, financial aid, registration, and payment plan support!
2. In-person and remote assistance are available for Desire2Learn, Student Portal, Degree Works, and Office 365.
3. 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. You may also call (843) 349-5199.

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 have librarians and staff who can aid with research, computers to support academic research and related school-work, and individual/group study rooms. Printing is available as well at each location. Visit the [Library](#) website for more information or

call (843) 349-5268.

STUDENT TESTING:

Testing in HGTC courses may occur during regularly scheduled class time or online, with or without proctoring. Tests may be delivered in the following formats:

- Digitally through D2L
- In writing on paper
- Through a publisher platform (note: some publisher platforms carry an associated fee)

Tests may include time limits and may require proctoring depending on the course.

When proctoring is required and is not provided by the course instructor in the classroom, students may complete their test face-to-face at an [HGTC Testing Center](#) or another approved testing site, or online using HGTC's online proctoring provider. For more information about available proctoring options, visit the [Online Testing](#) section of the HGTC Testing Center webpage.

Students testing at an HGTC Testing Center should note the following:

- **Appointments must be scheduled at least 24 hours in advance.**
- **A physical, government-issued photo ID is required to test.**

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. Students seeking accommodations are encouraged to visit HGTC's [Accessibility and Disability Service webpage](#) for detailed information.

It is the student's responsibility to self-identify as needing accommodations and to provide appropriate documentation. Once documentation is submitted, the student will participate in an interactive process with Accessibility and Disability Services staff to determine reasonable accommodations. Students may begin the

accommodations process at any time; however, accommodations are **not retroactive** and will only be applied from the point at which they are approved. Students must contact the office **each semester** to renew their accommodations.

For assistance, please contact the Accessibility and Disability Services team at disabilityservices@hgtc.edu or 843-796-8818 (call or text).

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 or visit the website the [Counseling Services webpage](#).

STATEMENT OF EQUAL OPPORTUNITY/NON-DISCRIMINATION STATEMENT:

Our sincere commitment to both effective business management and equitable treatment of our employees requires that we present this Policy Statement as an embodiment of that commitment to the fullest.

Discrimination is conduct that includes unjust or prejudicial treatment based upon an individual's age, race, color, sex, religion, national origin, disability, and genetic information or any other protected classes deemed unlawful under State or Federal law that excludes an individual from participation in, denies the individual the benefits of, treats the individual differently, or otherwise adversely affects a term or condition of a person's working or learning environment. This includes failing to provide reasonable accommodation, consistent with state and federal law, to persons with disabilities.

All inquiries regarding the federal laws as they relate to discrimination on the basis of sex may be directed to Jen Riddei, Title IX Coordinator, Horry-Georgetown Technical College, Building 1100C, Room 107B, 2050 HWY 501 E, PO Box 261966, 843-349-5218, Jenifer.Riddei@hgtc.edu.

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, and Section 504 & Title II Coordinator, Horry-Georgetown Technical College, Building 1100C, Room 107A, 2050 HWY 501 E, PO Box 261966-6066, 843-349-5228, Melissa.Batten@hgtc.edu.

Employee and applicant inquiries concerning the federal laws and their application to the College may be directed to Jacquelyne Synder, Vice President, Human Resources and Employee Relations and 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.

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 sexual harassment, 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).

All inquiries regarding the federal laws as they relate to discrimination on the basis of sex may be directed to Jen Riddei, Title IX Coordinator, Horry-Georgetown Technical College, Building 1100C, Room 107B, 2050 HWY 501 E, PO Box 261966, 843-349-5218, Jenifer.Riddei@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* that can be found [here](#).