



INSTRUCTIONAL PACKAGE

DAT 113
Dental Materials

Effective Term
Fall 2025/Spring 2026/Summer 2026

INSTRUCTIONAL PACKAGE

Part I: Course Information

Effective Term: Fall 2025/Spring 2026/Summer 2026

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.

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 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 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. Lecture and Lab need to be passed with a 77% independently of each other to pass the course.

EVALUATION*

Lecture 60% of overall grade	Weighted Percentage of Grade
Exams (2)	25%
Quizzes (9)	35%
Flipbook project	15%
Final exam	20%
Classroom participation and professionalism	5%

Lab 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.**

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 Academic Coaching for 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 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 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. 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. 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 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 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.

Testing candidates must make their appointments 24 hours in advance.

Students must bring a physical ID in order to take a test.

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. 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 sex, race/color, religion, national origin, age, disability, service in the uniformed services (as defined in state and federal law), veteran status, political ideas, marital or family status, pregnancy, childbirth, or related medical conditions, including, but not limited to, lactation, genetic information, genetic identity, gender expression, or sexual orientation 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.

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

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

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).

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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](#).