



# INSTRUCTIONAL PACKAGE

DAT 113

Dental Materials

202010  
Fall/ 2020

# INSTRUCTIONAL PACKAGE

## Part I: Course Information

Effective Term: 202010

COURSE PREFIX: DAT 113

COURSE TITLE: Dental Materials

CONTACT HOURS: 3

CREDIT HOURS: 4

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

The course will explain the importance of the study of dental materials in delivery of dental care for the allied oral health practitioner. Safety measures that are needed to work with various dental materials and lab equipment will be covered during the course. Utilization, composition, properties, care and storage, and hazard communication of selected dental materials will be covered during the course.

### **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 127 Dental Radiography

DAT 118 Morphology

DAT 154 Clinical Procedures

DAT 174 Office Rotations

### **REQUIRED MATERIALS:**

Please visit the Bookstore online site for most current textbook information. Use the direct link below to find textbooks.

[BOOKSTORE](#).

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 student portal for course materials.  
WaveNet and D2L email access.

### **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 polices 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

### **COURSE LEARNING OUTCOMES and ASSESSMENTS:**

#### LECTURE LEARNING OUTCOMES

#### **Module 1**

Material Covered: 43 Restorative and Esthetic dental Materials

Assessment: Lab Competencies, Quiz, Test, & Final Exam

Objectives:

1. Discuss the properties of dental materials
2. Discuss direct restorative and esthetic materials

3. Describe the properties of temporary restorative materials
4. Discuss indirect restorative materials

## **Module 2**

Material Covered: 44 Dental Liners, Bases, and Bonding Systems

Assessment: Lab Competencies, Quiz, Test, & Final Exam

Objectives:

1. Discuss how preparation of a tooth is determined
2. Discuss how sensitivity of a tooth determines what type of dental material is selected for a procedure
3. Discuss how and why cavity liners are used in restoring tooth structure
4. Discuss how and why cavity sealers, including varnish, are used in restoring a tooth structure

## **Module 3**

Material covered: 45 Dental Cements

Assessment: Lab Competencies, Quiz, Test, & Final Exam

Objectives:

1. Discuss the classification of dental cements
2. Discuss the variables that influence final cementations
3. List five cements and identify their similarities and differences
4. Discuss the steps in cement removal

## **Module 4**

Material covered: 46 Impression Materials

Assessment: Lab Competencies, Quiz, Test, & Final Exam

Objectives:

1. Describe the three types of impressions taken in a dental office
2. Describe the types of impression trays and their characteristics
3. Discuss hydrocolloid impression materials and their uses, mixing techniques and applications
4. Discuss elastomeric impression materials and their uses, mixing techniques, and applications
5. Explain the importance of occlusal registration and describe its use in the procedure

## **Module 5**

Material covered: 47 Laboratory Materials and Procedures

Assessment: Lab Competencies, Quiz, Test, & Final Exam

Objectives:

1. Discuss the safety precautions that should be taken in a dental laboratory
2. List the types of equipment found in a dental laboratory and describe their uses
3. Discuss dental models; how they are made and their role in dentistry
4. List the types of custom impression trays and describe their use in dentistry
5. Identify types of dental waxes and describe their use in dentistry

## **Module 6**

Material covered: 48 General Dentistry

Assessment: Lab Competencies, Quiz, Test, & Final Exam

Objectives:

1. Describe the process and principles of cavity preparation
2. Discuss the differences in assisting with the difference in classes of permanent restorations
3. Discuss why retention pins would be selected for a complex restorative procedure
4. Describe the need for placement of an intermediate restoration
5. Describe the procedure of applying composite restorations
6. Describe tooth whitening procedures and explain the role of the dental assistant

## **Module 7**

Material covered: 49 Matrix Systems for Restorative Dentistry

Assessment: Lab Competencies, Quiz, Test, & Final Exam

Objectives:

1. Describe the use of a matrix system in class II, III, and IV restorations
2. Describe the types of matrices used for posterior restorations including the purpose and use of a wedge
3. Describe the types of restorations used for anterior restorations
4. Discuss the alternative methods for matrix systems used in restorative dentistry

## **Module 8**

Material Covered: 50 Fixed Prosthodontics

Assessment: Lab Competencies, Quiz, Test, & Final Exam

Objectives:

1. List indications and contraindications to a fixed prosthesis
2. Discuss indirect restorations
3. Identify the role of the laboratory technician and steps for a diagnostic work up
4. Explain a crown procedure
5. Explain a bridge procedure
6. Explain the steps for using CAD/CAM

## **Module 9**

Material covered: 51 Provisional Coverage

Assessment: Lab Competencies, Quiz, Test, & Final Exam

Objectives:

1. Discuss provisional coverage
2. Discuss the criteria for provisional coverage
3. Identify home care instructions for provisional coverage
4. Explain the process of removing a provisional crown or bridge

## **Module 10**

Material covered: 52 Removable Prosthodontics

Assessment: Lab Competencies, Quiz, Test, & Final Exam

Objectives:

1. Differentiate between a removable partial and a full denture
2. Identify the factors that influence a removable partial and full dentures
3. Discuss removable partial dentures
4. Discuss removable full complete dentures
5. Discuss the construction, surgical template and placement of an immediate denture
6. Discuss the process of constructing overdentures
7. Discuss the process of denture adjustment and relining
8. Discuss denture repair and duplication

## **Module 11**

Material covered: 58 Coronal Polishing

Assessment: Lab Competencies, Quiz, Test, & Final Exam

Objectives:

1. Discuss coronal polishing
2. Name and describe types of extrinsic stains
3. Name the handpieces and attachments for coronal polishing
4. Explain the importance of selecting the appropriate polishing agent
5. Discuss polishing esthetic restorations
6. Discuss the steps of coronal polishing

## **Module 12**

Material covered: 59 Dental Sealants

Assessment: Lab Competencies, Quiz, Test, & Final Exam

Objectives:

1. Explain the ways dental sealants prevent caries development
2. Describe indications and contraindications for placement of sealants
3. Discuss types of sealant materials
4. Discuss preventing problems with sealants
5. Describe the precautions for dental personnel and patients with the use of sealants
6. Explain the most important factor in sealant retention

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

## **Lab 6**

### **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 7**

### **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 8**

### **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.

### **Lab 9**

#### **Objective:**

1. Demonstrate the proper mixing and handling of dental acrylics.

### **Lab 10**

#### **Objective:**

1. Demonstrate the fabrication of a custom acrylic impression tray.

***\*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 the overall grade
Tests	40%
Quizzes	40%
Final Exam	20%
	100%
Lab	40% of the overall grade
Competencies	60%
Final Study Model	40%
	100%

\*Students must pass both the Lecture and Lab with a 77% or better to pass this class.

***\*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 ([ACADEMIC CALENDAR](#)). 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.**

**Please refer to 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 to all students the following **free** resources:

- 1. Academic coaches** for most subject areas, **Writing Center Support**, and **college success skills.**
- 2. On-line student success and academic support resources.**

Visit the SSTC website: [Student Success & Tutoring Center](#) and visit the student services tab in your WaveNet account to schedule appointments using TutorTrac. For more information, 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 any time.

**TECH Central – Student Information Center**



TECH Central provides quality enrollment and collegiate guidance for students, faculty, and staff. Services include phone, walk-in, and online technical support for technology training and troubleshooting. Additionally, we offer support in Office 365, Outlook E-mail setup, and ID cards.

**Phone:** 843-349-5340

**Email:** [techcentral@hgtc.edu](mailto:techcentral@hgtc.edu)

**Text:** 843-357-8552

**TECH Talk (Live Chat):** Located on the "Home" tab in WaveNet.

**Website:** [www.hgtc.edu/techcentral](http://www.hgtc.edu/techcentral)

### **Locations:**

Conway Building 1100, Room 132D

Grand Strand Building 200, Room 136

**Student Testing:** (If course is offered in multiple format include this section, delete if only F2F sections are offered.)

Testing in an **online/hybrid** course may be accomplished in a variety of ways:

- Test administered within D2L
- Test administered in writing on paper
- Test administered through Publisher Platforms

Further more 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 RPNOW, 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 Beth Havens, Director of Student Development on the Conway Campus Jaime Davis, Counselor/Advisor on the Georgetown Campus or Kristin Griffin, Counselor on the Grand Strand Campus. These individuals 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.

Inquiries regarding the non-discrimination policies: Students and prospective student inquiries concerning Section 504, Title II, 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 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, Section 504, Title II, and Title IX Coordinator, Building 200, Room 212A, Conway Campus, PO Box 261966, Conway, SC 29528-6066, 843-349-5212, [Jacquelyne.Snyder@hgtc.edu](mailto:Jacquelyne.Snyder@hgtc.edu).

### **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).

<p><b>Inquiries regarding the non-discrimination policies:</b></p>	
<p>Student and prospective student inquiries concerning Section 504, Title II, and Title IX and their application to the College or any student decision may be directed to the Vice President for Student Affairs.</p>	<p>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.</p>
<p><b>Dr. Melissa Batten, VP Student Affairs</b> <i>Title IX Coordinator</i></p> <p>Building 1100, Room 107A, Conway Campus PO Box 261966, Conway, SC 29528-6066</p>	<p><b>Jacquelyne Snyder, VP Human Resources</b> <i>Section 504, Title II, and Title IX Coordinator</i></p> <p>Building 200, Room 212A, Conway Campus PO Box 261966, Conway, SC 29528-6066 843-349-5212</p>

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