



# **INSTRUCTIONAL PACKAGE**

BCT-223  
RESIDENTIAL MECHANICAL AND  
ELECTRICAL SYSTEMS

Effective Term  
Fall 2023/Spring 2024/Summer 2024

# INSTRUCTIONAL PACKAGE

## Part I: Course Information

Effective Term: Fall 2023/Spring 2024/Summer 2024

COURSE PREFIX: BCT-223

COURSE TITLE: RESIDENTIAL MECHANICAL AND  
ELECTRICAL SYSTEMS

CONTACT HOURS: 5.0

CREDIT HOURS: 3.0

### RATIONALE FOR THE COURSE:

This course is the study of methods, products, and procedures used in the design and application of electrical and mechanical systems used in today's commercial new construction projects. Students will focus on the contractor's operations in planning, organizing, managing, controlling and documenting all the mechanical and electrical work involved.

### COURSE DESCRIPTION:

This course is a study of the working of the basic HVAC, Electrical, and plumbing systems found in residential structures.

### PREREQUISITES/CO-REQUISITES:

(Credit level EGR 170 Minimum Grade of C or Credit level EGR 170 Minimum Grade of TC) and (Credit level CET 127 Minimum Grade of C or Credit level CET 127 Minimum Grade of TC)

### 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.

### ADDITIONAL REQUIREMENTS:

Scientific or Engineering Calculator / Engineering Paper/Scale(ruler)  
Use of Microsoft Word / Excel

### 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.

**Part II: Student Learning Outcomes****COURSE LEARNING OUTCOMES and ASSESSMENTS\*:****Unit 1: PLUMBING**

1. Chapter 01: Mech. & Electrical Systems Introduction
2. Chapter 02: Plumbing Materials
3. Chapter 03: Sanitary Drainage, Vent, and Stormwater Drainage Piping
4. Chapter 04: Sizing Sanitary Drainage and Vent Piping
5. Chapter 05: Sizing Water Supply Piping
6. Chapter 06: Plumbing Fixtures and Appliances
7. Chapter 07: Testing and Inspecting Plumbing Systems

**Unit 2: HEATING, VENTILATION, AND AIR CONDITIONING**

8. Chapter 08: Comfort
9. Chapter 09: Psychrometrics
10. Chapter 10: Forced Heating Systems
11. Chapter 11: Steam and Hydronic Heating Systems
12. Chapter 12: Refrigeration Principles
13. Chapter 13: Air Conditioning Systems
14. Chapter 14: Heat Pumps
15. Chapter 15: Building Automation Control Systems
16. Chapter 16: Heating and Cooling Loads

**Unit 3: ELECTRICAL SYSTEMS**

17. Chapter 20: Electrical Principals, Tools, and Safety
18. Chapter 21: Basic Quantities
19. Chapter 22: Test Instruments, Abbreviations, and Measurements
20. Chapter 23: Ohm's Law, The Power Formula, and Series and Parallel Circuits
21. Chapter 24: Electrical Plans and Connections
22. Chapter 25: Switches and Receptacles
23. Chapter 26: Non-Metallic-Sheathed Cable, Metallic-Sheathed Cable, and Conduit
24. Chapter 27: Service Entrance
25. Chapter 28: Transformers
26. Chapter 29: Resistance, Inductance, and Capacitance
27. Chapter 30: Commercial Circuits

*\*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\***

Tests (3)	50%
Assignments (12)	25%
Lab Assignments	25%
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	100%

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

### **GRADING SYSTEM:**

Please note the College adheres to a 10 point grading scale A = 100 – 90, B = 89- 80, C = 79 – 70, D = 69 – 60, F = 59 and below.

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

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

## **Part IV: Attendance**

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

## Part V: Student Resources



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

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

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

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



### STUDENT INFORMATION CENTER: TECH Central

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

1. **Getting around HGTC:** General information and guidance for enrollment, financial aid, registration, and payment plan support!
2. Use the [Online Resource Center \(ORC\)](#) including Office 365 support, password resets, and username information.
3. **In-person workshops, online tutorials and more services** are available in Desire2Learn, Student Portal, Degree Works, and Office 365.
4. **Chat with our staff on TECH Talk**, our live chat service. TECH Talk can be accessed on the student portal and on TECH Central's website, or by texting questions to (843) 375-8552.

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



### HGTC LIBRARY:

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

## STUDENT TESTING:

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

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

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

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

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

## DISABILITY SERVICES:

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

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

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

Horry-Georgetown Technical College prohibits discrimination and harassment, including sexual harassment and abuse, on the basis of race, color, sex, national or ethnic origin, age, religion, disability, marital or family status, veteran status, political ideas, sexual orientation, gender identity, or pregnancy, childbirth, or related medical conditions, including, but not limited to, lactation in educational programs and/or activities.

## TITLE IX REQUIREMENTS:

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

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

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

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

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

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

Building 1100, Room 107A, Conway Campus  
PO Box 261966, Conway, SC 29528-6066  
843-349-5228

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

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

**Jacquelyne Snyder, VP Human Resources**

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

Building 200, Room 205B, Conway Campus  
PO Box 261966, Conway, SC 29528-6066  
843-349-5212

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