



# **INSTRUCTIONAL PACKAGE**

ELW 112

Introduction to Electricity

Effective Term

Fall 2024/Spring 2025/Summer 2025

## INSTRUCTIONAL PACKAGE

### PART I: COURSE INFORMATION

Effective Term: Fall 2024/Spring 2025/Summer 2025

COURSE PREFIX: ELW 112

COURSE TITLE: Introduction to Electricity

CONTACT HOURS: 5.0

CREDIT HOURS: 3.0

### RATIONALE FOR THE COURSE:

Principles and properties of A/C and D/C electricity in the utility industry.

### COURSE DESCRIPTION:

This course introduces the fundamental concepts of electricity and test equipment to non-electrical/electronic majors. Topics include basic DC and AC principles, components and operation of test equipment.

### PREREQUISITES/CO-REQUISITES:

**COMPASS** Reading 65 (Same as for ENG 100) Writing 31 (Same as for ENG 100) Pre-Algebra 40 (Same as for MAT 155) Algebra 26.

**SAT** Reading 380 Math 400 (MAT 101 placement or use COMPASS Math placement)

**ACT** Reading 14 English 12 Math 16 (MAT 101 placement or use COMPASS Math placement)

**ASSET** Reading 37 Writing 37 Pre- Algebra 37

**Accuplacer** Reading 56 Writing 48 Arithmetic 43 Algebra 50

**Companion** Reading 56 Writing 48 Arithmetic 43 Algebra 50

\***Online/Hybrid** courses require students to complete the [DLi 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.

### ADDITIONAL REQUIREMENTS:

None

### 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.

**NETIQUETTE:** is the term commonly used to refer to conventions adopted by Internet users on the web, mailing lists, public forums, and in live chat focused on online communications etiquette. For more information regarding Netiquette expectations for distance learning courses, please visit [Online Netiquette](#).

## **Part II: Student Learning Outcomes**

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

- Knowledge of AC electric structure and distribution.
- Knowledge of electric quantity measurements and calculations.
- Function and use of series/parallel circuits.
- Conductor load calculating and measuring.
- Transformer principles.
- Capacitor principles.
- Alternating current formulas.

### **General Education Outcomes**

This course fulfills the following General Education Outcomes through transformer trouble shooting. Upon completion of this course, students will be able to:

- Communicate effectively;
- Think critically;
- Self and professional development.

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

**information on assessments and due dates.**

**Effective Professional and Interpersonal Communication (EPIC)**

This course fulfills HGTC's Quality Enhancement Plan for Effective Professional and Interpersonal Communication. Upon completion of this course, students will be able to:

(Check all that apply.)

Utilize appropriate communication formats when conveying professional and interpersonal thoughts and ideas.

Apply appropriate language when speaking and writing for their chosen field of study or Industry.

Demonstrate appropriate communication techniques when engaging audiences.

***\*Students – please refer to the Instructor's Course Information sheet for specific information on assessments and due dates.***

***The following is a specific breakdown of competencies and skills developed in this course.***

**Unit 1**

**AC/DC STRUCTURE**

Electric Flow

Insulators

Conductors/Semiconductors

**Unit 2**

**ELECTRICAL QUANTITIES**

Definition of Coulomb

Definition of amp, volt, ohm, watt

Compute electrical values with Ohms Law

**Unit 3**

**ELECTRICAL SOURCES**

Methods of electric production

Principle of electromagnetic induction

Lightning protection

Electric frequency (60 Hz)

**Unit 4**

**MAGNETISM**

Magnet properties

Axis poles

Polarities

Inductance

**Unit 5**

**SERIES CIRCUITS**

Properties of series circuits

Compute values for voltage, current, and resistance

Rules for solving electric values

### **Unit 6**

#### **PARALLEL CIRCUITS**

Properties of parallel circuits

Compute values for voltage, current, and resistance

Rules for solving electric values

Rules for solving electric values

### **Unit 7**

#### **MEASURING INSTRUMENTS**

Voltmeters

Amp meters

Rotation (motor) meters

Phase meters

Current transformers

Ohm meters

### **Unit 8**

#### **CAPACITIVE LOADS**

Capacitor construction

Electrostatic charge

Compute capacitive reactance

Capacitor dis-charging

Capacitor energizing

### **Unit 9**

#### **THREE PHASE CIRCUITS**

Delta and Wye systems

Voltage and current values

Delta and Wye circuit connections

### **Unit 10**

#### **TRANSFORMERS**

Transformer types

Compute values for voltage, current, and resistance

Rules for solving electric values

### **Unit 11**

#### **THREE PHASE TRANSFORMERS**

Transformer types, Delta, Wye

Compute values for voltage, current, and resistance

Three phase connections

### **Unit 12**

#### **ELECTRICAL SERVICES**

Three phase/Single phase services

Secondary conductor sizing

Three phase/Single phase connections

### **Unit 13**

#### **METER BASE WIRING (UTILITY)**

Three phase/Single phase meter base

Secondary cable training

Neutral and ground connections

### **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	30%
Exam	30%
Assignments	40%
	100%

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

#### **GRADING SYSTEM:**

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



STUDENT SUCCESS AND TUTORING CENTER

### 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.



### CENTRAL 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 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).

## **PREGNANT 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](#).