



INSTRUCTIONAL PACKAGE

EET 231
Industrial Electronics

Effective Term
Fall 2025/Spring 2026/Summer 2026

INSTRUCTIONAL PACKAGE

Part I: Course Information

Effective Term: Fall 2025/Spring 2026/Summer 2026

COURSE PREFIX: EET 231

COURSE TITLE: Industrial Electronics

CONTACT HOURS: 6

CREDIT HOURS: 4

RATIONALE FOR THE COURSE:

This course focuses on the electronics involved in industrial applications providing the student with a background in electromechanical concepts related to industrial machines and automation.

COURSE DESCRIPTION:

This course is a survey of topics related to industrial application of electronic devices and circuits. The course covers switches, DC and AC motor controls, sensors and transducers, open and closed loop control circuits and voltage converting interfaces. Circuits are constructed and tested.

PREREQUISITES/CO-REQUISITES:

(Credit level EET 227 Minimum Grade of C or Credit level EET 227 Minimum Grade of TC) or
(Credit level EET 114 Minimum Grade of C or Credit level EET 114 Minimum Grade of TC).

***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.

ADDITIONAL REQUIREMENTS:

Scientific calculator, USB flash drive.

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 complete identity 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*:

1. Introduction to Industrial Electronics
 - 1.1. Define the Industrial Revolution.
 - 1.2. Describe major inventions that lead to the Industrial Revolution.
 - 1.3. Discuss skills required of a competent troubleshooter.
 - 1.4. Describe system block diagrams
 - 1.5. Apply signal flow rules, bracketing, and information funneling.
 - 1.6. Describe troubleshooting sequence to find faults in systems.
2. Discrete Control Input and Output Devices
 - 2.1. Describe discrete input and output devices applied to industrial controls
 - 2.2. Identify and select appropriate I/O devices for particular industrial applications
 - 2.3. Describe operation of a sequential control system described by a relay logic diagram
 - 2.4. Utilize CAD to document industrial control ladder and wiring diagrams
 - 2.5. Create bill of material for an industrial control application
3. SCRs, TRIACs, and Other Thyristors
 - 3.1. Describe the structure and operation of SCRs.
 - 3.2. Describe the SCR device model, characteristic curves, and waveforms.
 - 3.3. Calculate values for typical gating circuits.
 - 3.4. Describe the operation of thyristor-triggering devices, i.e., the Schockey diode, the Diac, the UJT, and the PUT.
 - 3.5. Discuss typical applications of UJTs.
 - 3.6. Calculate values for typical UJT circuits.
 - 3.7. Describe the Triac device model, characteristic curves, and waveforms.
 - 3.8. Discuss typical applications of Triacs.
4. DC and AC Motor Controls
 - 4.1. Describe DC motor positioning control.

- 4.2. Describe DC motor speed control.
- 4.3. Describe AC synchronous motor control.
- 4.4. Describe stepper motor control.

****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*

Exams	30%
Labs.....	25%
Homework Assignments.....	20%
Class Participation	5%
Final Exam.....	<u>20%</u>
	100%

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

GRADING SYSTEM:

HGTC has a standardized, recommended grading scale for academic courses. The grading scale requires that grades within the indicated range be defined as follows:

A: 90-100 B: 80-89 C: 70-79 D: 60-69 F: Below 60

The following grades are used:

A - EXCELLENT: used in GPA calculations; carries a value of 4 quality points and earns credit hours.

B - ABOVE AVERAGE: used in GPA calculations; carries a value of 3 quality points and earns credit hours.

C - AVERAGE: used in GPA calculations; carries a value of 2 quality points and earns credit hours.

D - BELOW AVERAGE: used in GPA calculations; carries a value of 1 quality point and earns credit hours.

F - FAILURE: used in GPA calculations; carries a value of 0 quality points and earns 0 credit hours. (Hours attempted are used in GPA calculations.)

I - INCOMPLETE: does not affect GPA calculations; defaults to "F" automatically after one term if the incomplete work has not been completed and generates 0 quality points and 0 credit hours. (See special note below.)

WF - WITHDRAWN FAILURE: used in GPA calculations; carries a value of 0 quality points and earns 0 credit hours. (Hours attempted are used in GPA calculations.)

W - WITHDRAW: not used in GPA calculations; carries a value of 0 quality points and earns 0 credit hours. May be utilized when extenuating circumstances warrant.

Note: Regarding a grade of "I" (Incomplete): A grade of Incomplete ("I") is assigned when the student does not complete work or take the final exam due to illness or for other reasons over which the student has no control. This grade is given only with the approval of the professor involved. An incomplete must be completed by the end of the following term. Otherwise, the grade becomes an automatic failure ("F").

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 ssc@hgtc.edu or self-schedule in the Penji iOS/Android app or at www.penjiapp.com. Email 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.



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 in 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 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.

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).

Student and prospective student inquiries concerning Title IX and its 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 Title IX and its 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

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](#).