



# **INSTRUCTIONAL PACKAGE**

WLD-132

Inert Gas Welding Ferrous

Fall 2023/Spring 2024/Summer 2024

# INSTRUCTIONAL PACKAGE

## PART I: COURSE INFORMATION

Effective Term: Spring 2019/20

COURSE PREFIX: WLD-132

COURSE TITLE: Inert Gas Welding Ferrous

CONTACT HOURS: 8.0

CREDIT HOURS: 4.0

### RATIONALE FOR THE COURSE:

WLD 132 is a required course in the Advanced Welding Technology Program. WLD 132 will cover safety procedures and welding techniques associated with the Gas Tungsten Arc Welding, Gas Metal Arc Welding and Flux Cored Arc Welding processes.

### COURSE DESCRIPTION: WLD 132 – Inert Gas Welding Ferrous

This course covers set up and adjustment of equipment and fundamental techniques for welding ferrous metals.

### PREREQUISITES/CO-REQUISITES:

WLD- 111

**\*Online/Hybrid** courses require students to complete the DLI Online Student Orientation prior to completing an online course. The DLI Online Student Orientation can be found in WaveNet, under the My Student tab.

### REQUIRED MATERIALS:

Textbook required (Welding Principles and Applications 8<sup>th</sup> edition By Larry Jeffus).

Welding Equipment tool kit.

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.

**ADDITIONAL REQUIREMENTS:**

Basic writing supplies, computer access on and off campus. You must be able to have access to D2L and check it regularly. I will use this platform to communicate with you regarding classroom conversations, schedule and more. Class cancellation, assignment due dates and class updates will always be posted on D2L.

**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:**

No cell phones, iPads or computers unless instructed to use them for a project in class. You will be asked to leave if you can't abide by these rules, and if you are asked to leave, it will be counted as a half absence.

**PART II: STUDENT LEARNING OUTCOMES****COURSE LEARNING OUTCOMES and ASSESSMENTS\*:**

1. During all laboratory periods each student will apply the safety procedures associated with welding, cutting, and related activities as described in the ANSI Z49.1 Safety in Welding, Cutting.
2. Each student will perform safety inspections of their personal protective equipment and clothing, welding equipment and accessories, required tools and the work area prior to beginning lab activities.
3. Make minor repairs to gas tungsten, gas metal, and Flux Cored Arc welding equipment and accessories.
4. Set up for gas tungsten, gas metal arc welding and flux Cored arc welding operations.
5. Clean and prepare base metal for welding.
6. Set the welding machine on the correct polarity for Gas Tungsten, Gas Metal Arc Welding and Flux Cored Arc Welding.
7. Produce bead pad and fillet welds on plain carbon steel in the flat, horizontal, vertical and overhead positions using ER70S-2/G.T.A.W, ER70S-6/ G.M.A.W, and E71-T/ F.C.A.W. Filler metal.

Fillet welds to be evaluated by visual inspection methods to comply with American Welding Society weld inspection standards.

Without the use of references, each student will accomplish the following objectives with a minimum of 65% accuracy.

8. Identify safety hazards associated with gas tungsten arc welding and related operations.
9. Identify and explain welding electrical current.
10. Identify and explain Gas Tungsten, Gas Metal and Flux Cored arc welding machines.

11. Explain setting up of Gas Tungsten, Gas Metal and Flux cored arc welding equipment.
12. Identify and explain tools for weld cleaning.
13. Identify and explain AWS/ASME filler metal classification system.
14. Identify and explain different types of filler metal.
15. List the purpose of copper coatings.
16. Identify and explain the relationship of filler metal classification to welding current.
17. Explain considerations for selecting electrodes.
18. Explain the storage and control of filler metals.
19. Explain filler metal traceability requirements.
20. Explain how to use applicable code requirements.
21. Explain the effects of the following variables/essentials on a weld:
22. List and explain Tungsten types color codes and sizes.
23. Explain the shielding gases used in Gas Tungsten, Gas metal and Flux Cored Arc welding.
  - \* Amperage
  - \* Volts
  - \* Speed of Travel
  - \* Tungsten Length
  - \* Electrode Stick out \* Torch Angle\* Travel/Lead Angle\* Torch nozzle size

**RECOMMENDED READING AND LAB ASSIGNMENTS:**

(Instructor may modify schedule as required to meet the course objectives)

Welding Principles and Applications, Textbook

Section Four: Gas Shielded Arc Welding

Read Chapter 15: Gas Tungsten Arc Welding equipment, Setup, Operation, Filler Metals.

Read Chapter 16: Gas Tungsten Arc Welding Plate.

Read Chapter 13: Flux Cored Arc Welding.

|                |  |
|----------------|--|
| Week 1         | Orientation  |
| Week 2 -3      | Flat, Horizontal, Bead Pad, lap joint welds G.T.A.W. Process ER70S-2<br>Free hand and Walking the Cup Technique                              |
| <b>Week 3</b>  | <b>Test:</b> Flat, Horizontal  |
| Week 4 - 5     | Vertical, Overhead, Bead Pad welds G.T.A.W. Process ER70S-2 Filler,<br>Walking the Cup Technique   |
| <b>Week 5</b>  | <b>Test:</b> Vertical, Overhead  |
| Week 5- 10     | Horizontal, Vertical and Over Head Tee Joints welds G.T.A.W. Process<br>ER70S-2 Filler, 3/8 inch Fillet Welds<br>Walking the Cup Technique   |
| <b>Week 10</b> | <b>Test:</b> Horizontal, Vertical and Overhead   |
| Week 10 - 15   | Flat, Horizontal, Vertical and Overhead Tee Joints G.M.A.W. Process<br>ER70S-6 Filler and F.C.A.W Process E71-T Filler 3/8 inch Fillet welds |
| <b>Week 15</b> | <b>Test:</b> Flat, Horizontal, Vertical and Overhead   |

***\*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\***

|           |      |
|-----------|------|
| Lab Tests | 100% |
|-----------|------|

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

#### **GRADING SYSTEM:**

State the College’s or departmental grading system as delineated in the Catalog. 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. You must have your Dean’s approval if changes in the scale are 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 ([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 eighty percent (80%) of his or her classes in order to be eligible to receive credit for any course. However, due to the varied nature of courses taught at the College, a more rigid attendance policy may be required by individual instructors. At a minimum, a student may be withdrawn from a course(s) after he or she has been absent in excess of ten percent (10%) of the total contact hours for a course. **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, 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



### 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

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 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, gender, national or ethnic origin, age, religion, disability, marital status, veteran status, sexual orientation, gender identity, or pregnancy 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)

## INSTRUCTOR'S COURSE INFORMATION SHEET

### Part I: Instructor Information

|                                   |                                 |
|-----------------------------------|---------------------------------|
| <b>Instructor Name:</b>           | <i>Brian Muldowney</i>          |
| <b>Campus Phone Number:</b>       | <i>843-349-3639</i>             |
| <b>College Email Address:</b>     | <i>Brian.muldowney@hgtc.edu</i> |
| <b>Office Location:</b>           | <i>124 2000C</i>                |
| <b>Office Hours/Availability:</b> | <i>TBD</i>                      |

## PART II: COURSE SCHEDULE AND ASSESSMENTS

1. Lab Assignments **100% Students must pass all Destructive Transverse or Side Bend Test for successful course completion.**

|                |  |
|----------------|--|
| <b>Dates:</b>  | <i>This is just a suggested format for the weekly course schedule.</i>   |
| <b>Week 1</b>  | <i>Orientation/ Start Flat, Horizontal Bead Pads and Lap Joint welds</i> |
| <b>Week 2</b>  | Practice/ Free Hand and Walking Cup Technique                            |
| <b>Week 3</b>  | Practice /Test on Flat, Horizontal                                       |
| <b>Week 4</b>  | Vertical, Overhead Bead Pads Walking Cup Technique                       |
| <b>Week 5</b>  | Practice/Test Vertical, Overhead Walking Cup Technique                   |
| <b>Week 6</b>  | Practice / Horiz, Vert, and OH Tee Joints                                |
| <b>Week 7</b>  | Practice   |
| <b>Week 8</b>  | Practice   |
| <b>Week 9</b>  | Practice 3/8 Fillet Welds  |
| <b>Week 10</b> | Test on Horiz, Vert, OH Tee Joints                                       |
| <b>Week 11</b> | Practice/ Flat, Horiz, Vert, OH G.M.A.W. and F.C.A.W. processes          |
| <b>Week 12</b> | Practice   |
| <b>Week 13</b> | Practice   |
| <b>Week 14</b> | Practice   |
| <b>Week 15</b> | Test/ Flat, Horiz, Vert, OH G.M.A.W. and F.C.A.W.                        |

## **PART III: COURSE POLICIES**

### **EVALUATION OF REQUIRED COURSE ASSIGNMENTS**

Students' performance will be assessed and the weight associated with the various measures/artifacts are listed below.

#### **EVALUATION\***

|           |      |
|-----------|------|
| Lab Tests | 100% |
|           | 100% |

#### **CLASSROOM DECORUM:**

No cell phones, iPads or computers unless instructed to use them for a project in class. You will be asked to leave if you can't abide by these rules, and if you are asked to leave, it will be counted as a half absence.

**ATTENDANCE POLICY:**

As stated in the Course Instructional Package, College policy states student must attend 80% of the class meetings.

Absences will be counted in one half-day increments. Two half-day occurrences will count as a full class absence. Absences are “no fault”. A note describing the reason for absence is not necessary. Absences count the same regardless of reason.

**TARDY POLICY:**

Students are expected to be on time for class and to stay for the entire session.

Students who come in late or leave early will be counted absent for one-half day. You are expected to be on time and stay for the entire session

**MAKE-UP TEST POLICY:**

No make-ups on exams and quizzes except for extreme circumstances approved by the professor.

**Cell Phone Usage:** Cell phone usage in the classroom is unacceptable and will not be tolerated. If you need to urgently place or answer a call, please step outside the classroom. This also includes viewing, sending or receiving text messages. Anyone observed using a cell phone in class will be counted absent, asked to leave, or both.

