



# Introduction to Welding Technology / WELD 1000 COURSE SYLLABUS Fall Semester 2016(201712)

Semester: Fall 2016

Course Title: Introduction to Welding Technology

Course Number: WELD 1000

Credit Hours/ Minutes: 3 / 3000

Class Location: Room # 6204

Class Meets: Tues. & Thurs. 9:00 – 11:15

CRN: 20179

Instructor: Mr. Chris Cumbee

Office Hours: M/T/W/TH 7am – 8am

Office Location: Room 2606 Building 6

Email Address: ccumbee@southeasterntech.edu

Phone: 478-289-2325

**REQUIRED TEXT:** Welding Principals and Applications 8<sup>th</sup> edition

**REQUIRED SUPPLIES & SOFTWARE:** Spiral notebook, pen, highlighter, welding helmet, clear safety glasses, welding gloves, ear plugs, chipping hammer, half round file with tang, wire brush, wire cutters, Shade 5 cutting glasses, striker, Vice grips, combination square, torpedo level, ball peen hammer, 12" Crescent Wrench, 12' tape measure and a 4 1/2" angle grinder. **All students must have these items by the 2<sup>nd</sup> week of class; no exceptions.**

**COURSE DESCRIPTION:** Provides an introduction to welding technology with an emphasis on basic welding laboratory principles and operating procedures. Topics include: industrial safety and health practices, hand tool and power machine use, measurement, laboratory operating procedures, welding power sources, welding career potentials, and introduction to welding codes and standards.

**MAJOR COURSE COMPETENCIES:**

1. Industrial safety and health practices
2. Hand tool and power machine use
3. Measurement
4. Laboratory operating procedures
5. Welding career potentials
6. Introduction to welding codes and standards.

**PRE-REQUISITE(S):** All Required

**CO-REQUISITES:** None

**COURSE OUTLINE:** Industrial Safety and Health Practices; Hand Tool and Power Machine use; Measurement; Laboratory Operating procedures; Welding Power sources; Welding Career potentials; and Introduction to Welding Codes and Standards.

**GENERAL EDUCATION CORE COMPETENCIES:** STC has identified the following general education core competencies that graduates will attain:

1. The ability to utilize standard written English.
2. The ability to solve practical mathematical problems.
3. The ability to read, analyze, and interpret information.

All students pursuing a degree, a diploma, or a Technical Certificate of Credit with a General Education component will be required to pass the General Education Competency Exams prior to graduation.

**STUDENT REQUIREMENTS:** Tests and assignments must be completed on the specified date. Students are also responsible for policies and procedures in the STC E-Catalog.

**WORK ETHICS:** Instruction in the development of good work habits (work ethics) which aid in job retention and advancement is included in this course. This instruction will include weekly activities on a topic related to work ethics. Included are behaviors such as arriving for classes or meetings on time; completing work satisfactorily and on time; responding positively to supervision; following directions correctly; adhering to policies/regulations; using tools and resources properly; observing safety provisions; and working effectively as part of a team. **A separate work ethics grade will be assigned and will count 5% of the course grade.**

The Technical College System of Georgia instructs and evaluates students on work ethics in all programs of study. Ten work ethics traits have been identified and defined as essential for student success: appearance, attendance, attitude, character, communication, cooperation, organizational skills, productivity, respect, and teamwork.

**STC ATTENDANCE POLICY:** Class attendance is a very important aspect of a student's success. Being absent from class prevents students from receiving the full benefit of a course and also interrupts the learning process. Southeastern Technical College considers both tardiness and leaving early as types of absenteeism. Responsibility for class attendance rests with the student. Regular and punctual attendance at all scheduled classes is required for student success. Students will be expected to complete all work required by the instructor as described in the individual course syllabus.

Instructors have the right to give unannounced quizzes/assignments. Students who miss an unannounced quiz or assignment will receive a grade of 0. Students who stop attending class, but do not formally withdraw, may receive a grade of F and face financial aid repercussions in upcoming semesters.

Instructors are responsible for determining whether missed work may be made up and the content and dates for makeup work is at the discretion of the instructor.

Students will not be withdrawn by an instructor for attendance; however, all instructors will keep records of graded assignments and student participation in course activities. The completion dates of these activities will be used to determine a student's last date of attendance in the event a student withdraws, stops attending, or receives an F in a course.

**SPECIAL NEEDS:** Students with disabilities who believe that they may need accommodations in this class based on the impact of a disability are encouraged to contact Helen Thomas, 912-538-3126, hthomas@southeasterntech.edu, to coordinate reasonable accommodations.

**SPECIFIC ABSENCES:** Provisions for Instructional Time missed because of documented absences due to jury duty, military duty, court duty, or required job training will be made at the discretion of the instructor.

**PREGNANCY:** Southeastern Technical College does not discriminate on the basis of pregnancy. However, we can offer accommodations to students who are pregnant that need special consideration to successfully complete the course. If you think you will need accommodations due to pregnancy, please advise me and make appropriate arrangements with Helen Thomas, (912) 538-3126, hthomas@southeasterntech.edu.

**WITHDRAWAL PROCEDURE:** Students wishing to officially withdraw from a course(s) or all courses after the drop/add period and prior to the 65% portion of the semester (date will be posted on the school calendar) must speak with a Career Counselor in Student Affairs and complete a Student Withdrawal Form. A grade of "W" is assigned when the student completes the withdrawal form from the course.

**Students who are dropped from courses due to attendance (see your course syllabus for attendance policy) after drop/add until the 65% point of the semester will receive a "W" for the course. Abandoning a course(s) instead of following official withdrawal procedures may result in a grade of 'F' being assigned.**

**After the 65% portion of the semester, the student will receive a grade for the course. (Please note: A zero will be given for all missed assignments.)**

**There is no refund for partial reduction of hours. Withdrawals may affect students' eligibility for financial aid for the current semester and in the future, so a student must also speak with a representative of the Financial Aid Office to determine any financial penalties that may be assessed due to the withdrawal. All grades, including grades of 'W', will count in attempted hour calculations for the purpose of Financial Aid.**

**Remember - Informing your instructor that you will not return to his/her course does not satisfy the approved withdrawal procedure outlined above.**

**MAKEUP GUIDELINES (Tests, quizzes, homework, projects, etc...):** Statement will vary per program, course, or instructor. Information should be included pertaining to such items as tests, quizzes, homework, etc.....This should be consistent for instructors teaching in the same program/courses.

**ACADEMIC DISHONESTY POLICY:** The STC Academic Dishonesty Policy states All forms of academic dishonesty, including but not limited to cheating on tests, plagiarism, collusion, and falsification of information, will call for discipline. The policy can also be found in the STC Catalog and Student Handbook.

#### **Procedure for Academic Misconduct**

**The procedure for dealing with academic misconduct and dishonesty is as follows:**

**--First Offense--**

Student will be assigned a grade of "0" for the test or assignment. Instructor keeps a record in course/program files and notes as first offense. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus. The Registrar will input the incident into Banner for tracking purposes.

**--Second Offense--**

Student is given a grade of "WF" for the course in which offense occurs. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus indicating a "WF" has been issued as a result of second offense. The Registrar will input the incident into Banner for tracking purposes.

**--Third Offense--**

Student is given a grade of "WF" for the course in which the offense occurs. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus indicating a "WF" has been issued as a result of second offense. The Vice President for Student Affairs, or designee, will notify the student of suspension from college for a specified period of time. The Registrar will input the incident into Banner for tracking purposes.

**STATEMENT OF NON-DISCRIMINATION:** Southeastern Technical College does not discriminate on the basis of race, color, creed, national or ethnic origin, gender, religion, disability, age, disabled veteran, veteran of Vietnam Era or citizenship status, (except in those special circumstances permitted or mandated by law). This school is in compliance with Title VI of the Civil Rights Act of 1964, which prohibits discrimination on the basis of race, color, or national origin; with the provisions of Title IX of the Educational Amendments of 1972, which prohibits discrimination on the basis of gender; with the provisions of Section 504 of the Rehabilitation Act of 1973, which prohibits discrimination on the basis of handicap; and with the American with Disabilities Act (ADA).

**GRIEVANCE PROCEDURES:** Grievance procedures can be found in the Catalog and Handbook located on STC's website.

**ACCESS TO TECHNOLOGY:** Students can now access Blackboard, Remote Lab Access, Student Email, Library Databases (Galileo), and BannerWeb via the mySTC portal or by clicking the Current Students link on the STC website at [www.southeasterntech.edu](http://www.southeasterntech.edu).

**GRADING POLICY**

Written Tests 95%  
Work Ethics 5%

**GRADING SCALE**

A: 90-100  
B: 80-89  
C: 70-79  
D: 60-69  
F: 0-59

**TCSG GUARANTEE/WARRANTY**

**STATEMENT:** *The Technical College System of Georgia guarantees employers that graduates of State Technical Colleges shall possess skills and knowledge as prescribed by State Curriculum Standards. Should any graduate employee within two years of graduation be deemed lacking in said skills, that student shall be retrained in any State Technical College at no charge for instructional costs to either the student or the employer.*

**WELD 1000—INTRODUCTION TO WELDING TECHNOLOGY**  
**Fall Semester 2016 Lesson Schedule**

Date	Chapter / Lesson	Content	Assignments Tests	*Competency Area
Aug 16	Introduction to Welding Technology Power Point	First day of class/Class Introduction—Syllabus, Outline, Rules, Regulations Coverage, Library Resources and tour Welding acronyms and terminology	Discuss and define welding acronyms:	1,2,A,B,C
18	Chapter 1 Intro. To Welding	Welding defined, Uses of Welding, Welding Processes, Occupations, Careers	Quiz on Welding Acronyms.	1,4,6A,B,C
23	Chapter 1 Intro. To Welding	Welding defined, Uses of Welding, Welding Processes, Occupations, Careers	Class Discussion	1,4,6A,B,C
25	Chapter 2	Welding Safety: Burns, MSDS, Work Clothing, Fire Protection, Storing and	Instructor will show students the locations of the First Aid Kits, Fire Extinguishers,	1,2,4,5A,B,C

	Safety	Handling Gas Cylinders, Welding Equipment.	Manifold System, Welding Gases	
30	Chapter 2 Safety	Welding Safety: Burns, MSDS, Work Clothing, Fire Protection, Storing and Handling Gas Cylinders, Welding Equipment.	Instructor will show students the locations of the First Aid Kits, Fire Extinguishers, Manifold System, Welding Gases	1,2,4,5A,B,C
Sep. 1	Chapter 2 Safety	Welding Safety: Burns, MSDS, Work Clothing, Fire Protection, Storing and Handling Gas Cylinders, Welding Equipment.	Instructor will show students the locations of the First Aid Kits, Fire Extinguishers, Manifold System, Welding Gases	1,2,4,5A,B,C
6	Chapter 3 SMAW	Shielded Metal Arc Welding Equipment, Safety, Operation and Set Up, Duty Cycle, Welding Cables, Electrode Holders	Demonstration of SMAW given by instructor. Test on Chapters 1, 2	1,2,4,5,7,A,B,C
8	Chapter 4 SMAW of Plate	SMAW of Plate, Current Settings, Electrode Size, Arc Length, Stringer Beads, Electrode Manipulation, Butt, Tee, Corner, Lap and Edge Joints.	Students in lab practicing SMAW welding techniques	1,2,4,5,7,A,B,C
13	Chapter 5 SMAW of Pipe	SMAW of Pipe, Preparation and Fit Up, 1G, 2G, 5G and 6G welding positions.	Demonstration will be given by instructor on SMAW of pipe. Test on Chapters 3, 4.	1,2,4,5,A,B,C
15	Chapter 7 Flame Cutting	Flame Cutting, Metals, Eye Protection, Oxyfuel Cutting, Set Up, Hand Cutting, Layout	Demonstration will be given by instructor on OFC and brazing. Students will practice OFC set up and hand cutting techniques.	1,2,4,5,7,A,B,C
20	Chapter 7 Flame Cutting	Flame Cutting, Metals, Eye Protection, Oxyfuel Cutting, Set Up, Hand Cutting, Layout	Students will practice OFC set up and hand cutting techniques.	1,2,4,5,7,A,B,C
22	Chapter 7 Flame Cutting	Oxyfuel Cutting – Pipe Cutting, Track Torch	Demonstration given by instructor using an Oxyfuel Pipe Beveler and Track Torch.	1,2,4,7,A,B,C
27	Chapter 10 Gas Metal Arc Welding	Gas Metal Arc Welding Equipment, Set Up and Operation, Metal Transfer, Filler Metal Specifications, Deposition Rates	Demonstration will be given by instructor using the GMAW process.	1,2,4,5,7,A,B,C
29	Chapter 11 Gas Metal Arc Welding	GMAW, Flow Rates, Electrode Extension, Gun Angle, Shielding Gas, Modes of Transfer	Students will be in lab practicing GMAW. Test on Chapters 10 & 11	1,2,4,5,A,B,C
Oct. 4	Chapters 12, 13 FCAW	Fillet Welds, Groove Welds	Demonstration using the FCAW process to be given by instructor, students practicing FCAW.	1,2,4,5,7,A,B,C
6	Chapters 12, 13 FCAW	Fillet Welds, Groove Welds	Demonstration using the FCAW process to be given by instructor, students practicing FCAW. Test on Ch. 12 & 13	1,2,4,5,7,A,B,C
11	Chapters 15, 16, 17 Gas Tungsten Arc Welding	Gas Tungsten Arc Welding Equipment, Operation and Set Up, Tungsten, Shielding Gases, Tungsten Shaping, Remote Controls	Demonstration using the GTAW process to be given by instructor, students practicing GTAW.	1,2,4,5,A,B,C
13	Chapters 15, 16, 17 Gas Tungsten Arc Welding	GTAW Equipment, Operation and Set Up, Tungsten, Shielding Gases, Tungsten Shaping, Remote Controls	Demonstration using the GTAW process to be given by instructor, students practicing GTAW. Test on CH. 15, 16, & 17	1,2,4,5,A,B,C
18	Chapter 18 Welding Joint Design, Welding Symbols	Welding Joint Design, Five Basic Weldments, Welding Symbols, Shop Math	Lecture, Review of Shop Math and basic mathematical problem solving, joint design and welding symbols.	1,2,3,4,5,A,B,C
20	Chapter 19 Welding Cost, Codes, Standards	Welding Cost, Codes, Standards, Specifications, Structural and Pipe Welding	Lecture, Students in lab practicing welding processes.	1,2,4,5,7,A,B,C
25	Chapter 19 Welding Cost, Codes, Standards	Welding Cost, Codes, Standards, Specifications, Structural and Pipe Welding	Lecture, Students in lab practicing welding processes.	1,2,4,5,7,A,B,C
27	Chapter 20 Testing and Inspection of Welds	Quality Control, Defects, Discontinuities, Destructive and Non-Destructive Testing	Instructor will demonstrate Visual Inspection and Destructive testing using the Guided Bend Test.	1,2,4,5,A,B,C

Nov. 1	Chapter 20 Testing and Inspection of Welds	Quality Control, Defects, Discontinuities, Destructive and Non-Destructive Testing	Instructor will demonstrate Visual Inspection and Destructive testing using the Guided Bend Test.	1,2,4,5,A,B,C
3	Chapter 21 Welder Certification	Welder Qualification and Welder Certification, Welding Career Potential	Instructor will demonstrate proper welding techniques for welder certification.	1,2,4,5,6,A,B,C
8	Chapter 21 Welder Certification	Welder Qualification and Welder Certification, Welding Career Potential	Instructor will demonstrate proper welding techniques for welder certification.	1,2,4,5,6,A,B,C
10	Chapter 21 Welder Certification	Welder Qualification and Welder Certification, Welding Career Potential	Instructor will demonstrate proper welding techniques for welder certification.	1,2,4,5,6,A,B,C
15	Chapter 21 Welder Certification	Welder Qualification and Welder Certification, Welding Career Potential	Instructor will demonstrate proper welding techniques for welder certification.	1,2,4,5,6,A,B,C
17	Chapter 24 Weldability of Metals	Weldability of Metals	Lecture, Study Guides given out for Final Exam	1,2,A,B,C
22	Chapter 25 Filler Metal Selection	Filler Metal Selection	Lecture; Various Filler Metals	1,2,A,B,C
24	Holiday	Holiday	Holiday	Holiday
29	Reviewing for FINAL EXAM	Reviewing for FINAL EXAM	Reviewing for FINAL EXAM	1,2,3,4,5,6,7, ,A,B,C
Dec. 1	FINAL EXAM	FINAL EXAM	FINAL EXAM	1,2,3,4,5,6,7, ,A,B,C

**\* Competency Areas:**

1. **Industrial Safety and Health Practices**
2. **Hand Tool and Power Machine Use**
3. **Measurement**
4. **Laboratory Operating Procedures**
5. **Welding Career Potentials**
6. **Introduction to Welding Codes and Standards**
7. **Welding Inspection**

**\*\*General Core Educational Competencies**

- A) **The ability to utilize standard written English.**
- B) **The ability to solve practical mathematical problems.**
- C) **The ability to read, analyze, and interpret information.**

**\*Work Ethics**

As noted in the lesson plans, a work ethics topic will be discussed in class each week.

# Work Ethics Assessment

## Grading Rubric

	<b>Achievement Level 1 (10 pt. ea.)</b>	<b>Achievement Level 2 (5 pts. ea.)</b>	<b>Achievement Level 3 (3 pts. ea.)</b>		
<b>Knowledge and Ability to Evaluate Scenario Situations</b>	Student's answer displays an adequate knowledge of the discussion topic and a meaningful evaluation of the scenarios.	Student's answer displays a fair knowledge of the discussion topic and a meaningful evaluation of the scenarios.	Student's answer displays a poor knowledge of the discussion topic and a less than meaningful evaluation of the scenarios		
<b>Length of Answers in Paragraph Form</b>	Student has at least one complete paragraph consisting of 30 words or more.	Student has at least one complete paragraph consisting of 20 words or less.	Student has at least one complete paragraph consisting of 15 words or more.		
<ul style="list-style-type: none"> <li>• <b>If a work ethic topic(s) is not answered, the student will receive 0 points.</b></li> <li>• <b>A score of at least 70 out of 100 points must be achieved in order to pass the Work Ethics Exam.</b></li> </ul>					