



TENTATIVE—SUBJECT TO CHANGE
ELTR 1220 Industrial PLC's
HYBRID COURSE SYLLABUS
Spring Semester 2022 (202214)

COURSE INFORMATION

Credit Hours/Minutes: 4/4500

Campus/Class Location: Vidalia Main Campus Building A/ Lab 429

Class Meets: 20% Hybrid / 80% F2F, 15 weeks, Monday 8:00AM-12:20PM

Course Reference Number (CRN): 40100

Preferred Method of Contact: Email

Instructor contact information

Full-Time Instructor's Name: Tony Criswell

Email Address: [Tony Criswell \(tcriswell@southeasterntech.edu\)](mailto:tcriswell@southeasterntech.edu)

Campus/Office Location:

Swainsboro: Building 6 Lab 6102

Vidalia: Main- Lab 429

Office Hours:

Swainsboro Campus: Wednesday 1:30PM- 3:45PM

Vidalia Campus: Monday, Tuesday, and Thursday 1:30PM- 3:45PM

Phone: 478-289-2235 **Fax Number:** 478-289-2276

Tutoring Hours: Available upon request

This course is taught in a hybrid format. Hybrid classes require students to complete a portion of the required contact hours traditionally by attending classes on campus while completing the remaining portion online at the student's convenience with respect to the instructor's requirements.

SOUTHEASTERN TECHNICAL COLLEGE'S (STC) CATALOG AND HANDBOOK

Students are responsible for all policies and procedures and all other information included in Southeastern Technical College's : [Catalog and Handbook \(https://catalog.southeasterntech.edu/college-catalog/downloads/current.pdf\)](https://catalog.southeasterntech.edu/college-catalog/downloads/current.pdf).

REQUIRED TEXT

Programmable Logic Controllers: Hardware and Programming, 4th Edition, Published by Goodheart-Wilcox
ISBN: 978-1-63126-932-5

REQUIRED SUPPLIES & SOFTWARE

Safety Glasses, Wire Stripper, Small Flathead Screwdriver

Students should not share login credentials with others and should change passwords periodically to maintain security.

COURSE DESCRIPTION

Introduces operational theory, systems terminology, PLC installations, and programming procedures for programmable logic controls. Emphasis is placed on PLC programming, connections, installations, and start-up procedures.

MAJOR COURSE COMPETENCIES

PLC hardware and software, PLC functions and terminology, introductory numbering systems, PLC installation and setup, PLC programming basics, relay logic instructions, timers and counters, connecting field devices to I/O cards, and PLC safety procedures.

PREREQUISITE(S)

None

COURSE OUTLINE

1. PLC Hardware and Software
2. PLC Functions and Terminology
3. Introductory Numbering Systems
4. PLC Installation and Setup
5. PLC Programming Basics
6. Relay Logic Instructions
7. Timers and Counters
8. Connecting Field Devices to I/O Cards
9. PLC Safety Procedures

GENERAL EDUCATION CORE COMPETENCIES

Southeastern Technical College 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.

STUDENT REQUIREMENTS

Class attendance is a very important aspect of a student's success in this course. Responsibility for class attendance rests with the student. Regular and punctual attendance at all scheduled classes is expected. Students are expected to complete all work required by the instructor. Unannounced quizzes/assignments may be given. Students that miss an unannounced quiz or assignment will receive a grade of 0. Students are expected to complete all work shown on the attached assignment sheet. Students are also expected to complete all tests and comprehensive problems on the dates specified on the attached calendar. Students are responsible for policies and procedures included in the *STC Catalog*. **Electrical program students must earn a minimum grade of C in all courses to graduate.**

COVID-19 MASK REQUIREMENT

Regardless of vaccination status, students are highly encouraged to wear masks or face coverings while in a classroom or lab at Southeastern Technical College. Masking may be implemented in some program areas (i.e. Health Sciences and Cosmetology) where students, faculty, and clients are in close proximity and social distancing cannot be maintained. This measure is being implemented to reduce COVID-19 related health risks for everyone engaged in the educational process. Masks or face coverings must be worn over the nose and mouth, in accordance with the Centers for Disease Control and Prevention (CDC).

COVID-19 SIGNS AND SYMPTOMS

We encourage individuals to monitor for the signs and symptoms of COVID-19 prior to coming on campus.

If you have experienced the symptoms listed below or have a body temperature 100.4°F or higher, we encourage you to self-quarantine at home and contact a primary care physician's office, local urgent care facility, or health department for further direction. Please notify your instructor(s) by email and do not come on campus for any reason.

COVID-19 Key Symptoms
Fever or felt feverish
Chills
Shortness of breath or difficulty breathing (not attributed to any other health condition)
Cough: new or worsening, not attributed to another health condition
Fatigue
Muscle or body aches
Headache
New loss of taste or smell
Sore throat (not attributed to any other health condition)
Congestion or runny nose (not attributed to any other health condition)
Nausea or vomiting
Diarrhea
In the past 14 days, if you:
Have had close contact with or are caring for an individual diagnosed with COVID-19 at home (not in healthcare setting), please do not come on campus and contact your instructor (s).

COVID-19 SELF-REPORTING REQUIREMENT

Students, regardless of vaccination status, who test positive for COVID-19 or who have been exposed to a COVID-19 positive person, are required to self-report using <https://www.southeasterntech.edu/covid-19/>. Report all positive cases of COVID-19 to your instructor and [Stephannie Waters](#), Exposure Control Coordinator, swaters@southeasterntech.edu, 912-538-3195.

HYBRID ATTENDANCE

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 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" (Failing 0-59) 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.

STUDENTS WITH DISABILITIES

Students with disabilities who believe that they may need accommodations in this class based on the impact of a disability are encouraged to contact the appropriate campus coordinator to request services.

Swainsboro Campus: [Daphne Scott dscott@southeasterntech.edu](mailto:dscott@southeasterntech.edu), 478-289-2274, Building 1, Room 1210.

Vidalia Campus: [Helen Thomas \(hthomas@southeasterntech.edu\)](mailto:hthomas@southeasterntech.edu), 912-538-3126, Building A, Room 165.

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 make arrangements with the appropriate campus coordinator.

Swainsboro Campus: [Daphne Scott dscott@southeasterntech.edu](mailto:dscott@southeasterntech.edu), 478-289-2274, Building 1, Room 1210.

Vidalia Campus: [Helen Thomas \(hthomas@southeasterntech.edu\)](mailto:hthomas@southeasterntech.edu), 912-538-3126, Building A, Room 165.

It is strongly encouraged that requests for consideration be made **PRIOR** to delivery and early enough in the pregnancy to ensure that all the required documentation is secured before the absence occurs. Requests made after delivery MAY NOT be accommodated. The coordinator will contact your instructor to discuss accommodations when all required documentation has been received. The instructor will then discuss a plan with you to make up missed assignments.

WITHDRAWAL PROCEDURE

Students wishing to officially withdraw from a course(s) or all courses after the drop/add period and prior to the 65% point of the term in which student is enrolled (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" (Withdrawn) is assigned for the course(s) when the student completes the withdrawal form.

Important – Student-initiated withdrawals are not allowed after the 65% point. After the 65% point of the term in which the student is enrolled, the student has earned the right to a letter grade and will receive a grade for the course. Please note: Abandoning a course(s) instead of following official withdrawal procedures may result in a grade of "F" (Failing 0-59) being assigned.

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

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. A grade of "W" will count in attempted hour calculations for the purpose of Financial Aid.

MAKEUP GUIDELINES (TESTS, QUIZZES, HOMEWORK, PROJECTS, ETC.)

Extenuating circumstances are determined at the instructor's discretion. Unless otherwise scheduled with the instructor, it is expected that the test will be taken the next day, scheduled outside of regular class time. Failure to follow this procedure will result in a grade of zero.

Assignment due dates are listed on the attached lesson schedule. Students are expected to have the assignment completed at the beginning of class on the date that it is due. It is within the instructor's discretion to accept or reject late assignments. Any late assignments accepted will be subject to a ten-point penalty each day the assignment is late. After three class meetings, no late assignments will be accepted; a zero will be recorded.

Unannounced quizzes are subject to be given on any day. A grade of zero will be assigned for any quizzes missed. There will be no makeup of quizzes. Any zeros recorded will be included in the final score calculation.

ACADEMIC DISHONESTY POLICY

The Southeastern Technical College Academic Dishonesty Policy states that 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 Southeastern Technical College Catalog and Handbook.

PROCEDURE FOR ACADEMIC MISCONDUCT

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

1. 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.

2. Second Offense

Student is given a grade of "WF" (Withdrawn Failing) 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.

3. 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 third 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

As set forth in the student catalog, Southeastern Technical College does not discriminate on the basis of race, color, creed, national or ethnic origin, sex, religion, disability, age, political affiliation or belief, genetic information, veteran status, or citizenship status (except in those special circumstances permitted or mandated by law).

The following individuals have been designated to handle inquiries regarding the nondiscrimination policies:

American With Disabilities Act (ADA)/Section 504 - Equity- Title IX (Students) – Office of Civil Rights (OCR) Compliance Officer	Title VI - Title IX (Employees) – Equal Employment Opportunity Commission (EEOC) Officer
Helen Thomas, Special Needs Specialist Vidalia Campus 3001 East 1 st Street, Vidalia Office 165 Phone: 912-538-3126 Email: Helen.Thomas@southeasterntech.edu	Lanie Jonas, Director of Human Resources Vidalia Campus 3001 East 1 st Street, Vidalia Office 138B Phone: 912-538-3230 Email: Lanie.Jonas@southeasterntech.edu

ACCESSIBILITY STATEMENT

Southeastern Technical College is committed to making course content accessible to individuals to comply with the requirements of Section 508 of the Rehabilitation Act of Americans with Disabilities Act (ADA). If you find a problem that prevents access, please contact the course instructor.

GRIEVANCE PROCEDURES

Grievance procedures can be found in the Catalog and Handbook located on Southeastern Technical College'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 [Southeastern Technical College \(STC\) Website \(www.southeasterntech.edu\)](http://www.southeasterntech.edu).

TECHNICAL COLLEGE SYSTEM OF GEORGIA (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.

GRADING POLICY

Assessment/Assignment	Percentage
Labs	50%
Test	40%
Know and Understand Questions	10%
Total	100%

GRADING SCALE

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

ELTR 1220 Industrial PLC's Spring Semester 2022 Lesson Plan

Date/Week	Content	Assignments & Tests Due Dates	Competency Area
January 10		<ul style="list-style-type: none"> • Spring Semester Begins 	
January 10	Introduction	<ul style="list-style-type: none"> • Instructor will go over syllabus, lesson plan, lab rules, how to access the portion of the class and introduction of PLC's • Getting Started – Start Here Items: 	
January 10-24	Module 1- Chapter 1- Programmable Logic Controller Overview	<ul style="list-style-type: none"> • Instructor will discuss information about PLC's, show a demonstration of how PLC's work, different components of the PLC • Look at Chapter 1- Programmable Logic Controller PowerPoint in Blackboard • Read Chapter 1- Programmable Logic Controller Overview in textbook • Complete Know and Understand questions at the end of the chapter of Chapter 1- Programmable Logic Controller Overview and submit answers in blackboard • Complete Chapter 1- Programmable Logic Controller Overview test in Blackboard 	1,2,3,4,9 a,b,c
January 17		<ul style="list-style-type: none"> • Martin Luther King Holiday 	
January 24- February 7	Module 2 Chapter 2- PLC Selection, Components, and Communication	<ul style="list-style-type: none"> • Instructor will discuss information about PLC's, show a demonstration of how PLC's work, different components of the PLC • Look at Chapter 2- PLC Selection, Components, and Communication PowerPoint in Blackboard • Read Chapter 2- PLC Selection, Components, and Communication in textbook • Complete Know and Understand questions at the end of the chapter of Chapter 2- PLC Selection, Components, and Communication and submit answers in blackboard • Complete Chapter 2- PLC Selection, Components, and Communication test in Blackboard • Complete Labs 1-3 Future Tek L24-EDP Trainer • Complete Labs 1-4 on Future Tek Siemens 1200 PLC Trainer 	4,5,6,9 a,b,c
February 14-21	Module 3 Chapter 3- Number Systems and Codes	<ul style="list-style-type: none"> • Instructor will discuss information about PLC's, show a demonstration of how PLC's work, different components of the PLC • Look at Chapter 3- Number Systems and Codes PowerPoint in Blackboard • Read Chapter 3- Number Systems and Codes in textbook • Complete Know and Understand questions at the end of the chapter of Chapter 3- Number Systems and Codes and submit answers in blackboard • Complete Chapter 3- Number Systems and Codes test in Blackboard 	5,7,9 a, b, c

Date/Week	Content	Assignments & Tests Due Dates	Competency Area
February 21-28	Module 4 Chapter 4- Input/Output Devices and Motor Controls	<ul style="list-style-type: none"> • Instructor will discuss information about PLC's, show a demonstration of how PLC's work, different components of the PLC • Look at Chapter 4- Input/Output Devices and Motor Controls PowerPoint in Blackboard • Read Chapter 3- Number Systems and Codes in textbook • Complete Know and Understand questions at the end of the chapter of Chapter 4- Input/Output Devices and Motor Controls and submit answers in blackboard • Complete Chapter 4- Input/Output Devices and Motor Controls test in Blackboard • Complete Lab 5 Future Tek L24-EDP Trainer • Complete Lab 6 on Future Tek Siemens 1200 PLC Trainer 	1,2,3,4,9 a,b,c
March 7		<ul style="list-style-type: none"> • Midterm- There is no midterm exam. Just a reminder that the semester is half way complete. Stay on Task and finish strong 	
March 7-14	Module 5 Chapter 5- Creating Relay Ladder Logic Diagrams	<ul style="list-style-type: none"> • Instructor will discuss information about PLC's, show a demonstration of how PLC's work, different components of the PLC • Look at Chapter 5- Creating Relay Ladder Logic Diagrams PowerPoint in Blackboard • Read Chapter 5- Creating Relay Ladder Logic Diagrams in textbook • Complete Know and Understand questions at the end of the chapter of Chapter 5- Creating Relay Ladder Logic Diagrams and submit answers in blackboard • Complete Chapter 5- Creating Relay Ladder Logic Diagrams test in Blackboard • Complete Lab 1-4 Future Tek 1202 Logic Trainer 	4,5,6,9 a,b,c
March 21		<ul style="list-style-type: none"> • 65%- Last day to withdraw from course with a W. After this point you cannot withdraw. 	
March 14-21	Module 6 Chapter 6- PLC Programming	<ul style="list-style-type: none"> • Instructor will discuss information about PLC's, show a demonstration of how PLC's work, different components of the PLC • Look at Chapter 6- PLC Programming PowerPoint in Blackboard • Read Chapter 6- PLC Programming in textbook • Complete Know and Understand questions at the end of the chapter of Chapter 6- PLC Programming and submit answers in blackboard • Complete Chapter 6- PLC Programming test in Blackboard • Complete Lab 6 Future Tek 1202 Logic Trainer 	5,7,9 a, b, c

Date/Week	Content	Assignments & Tests Due Dates	Competency Area
March 28- April 11	Module 7 Chapter 7- Programming Logic Gate Functions In PLC's	<ul style="list-style-type: none"> • Instructor will discuss information about PLC's, show a demonstration of how PLC's work, different components of the PLC • Look at Chapter 7- Programming Logic Gate Functions In PLC's PowerPoint in Blackboard • Read Chapter 7- Programming Logic Gate Functions In PLC's in textbook • Complete Know and Understand questions at the end of the chapter of Chapter 7- Programming Logic Gate Functions In PLC's and submit answers in blackboard • Complete Chapter 7- Programming Logic Gate Functions In PLC's test in Blackboard 	1,2,4,5,6, 8,9 a,b,c
April 11-18	Module 8 Chapter 8- PLC Timer Instructions	<ul style="list-style-type: none"> • Instructor will discuss information about PLC's, show a demonstration of how PLC's work, different components of the PLC • Look at Chapter 8- PLC Timer Instructions PowerPoint in Blackboard • Read Chapter 8- PLC Timer Instructions in textbook • Complete Know and Understand questions at the end of the chapter of Chapter 8- PLC Timer Instructions and submit answers in blackboard • Complete Chapter 8- PLC Timer Instructions test in Blackboard • Complete Labs 6 Future Tek L24-EDP Trainer • Complete Lab 7 Future Tek 1202 Logic Trainer • Complete Labs 8-11 on Future Tek Siemens 1200 PLC Trainer 	
April 18-25	Module 9 Chapter 9- PLC Counter Instructions	<ul style="list-style-type: none"> • Instructor will discuss information about PLC's, show a demonstration of how PLC's work, different components of the PLC • Look at Chapter 9- PLC Counter Instructions PowerPoint in Blackboard • Read Chapter 9- PLC Counter Instructions in textbook • Complete Know and Understand questions at the end of the chapter of Chapter 9- PLC Counter Instructions and submit answers in blackboard • Complete Chapter 9- PLC Counter Instructions test in Blackboard • Complete Labs 7 Future Tek L24-EDP Trainer • Complete Lab 6 Future Tek 1202 Logic Trainer • Complete Labs 12 on Future Tek Siemens 1200 PLC Trainer 	

Date/Week	Content	Assignments & Tests Due Dates	Competency Area
April 25- May 2	Module 10 Chapter 16- Troubleshooting and Servicing the PLC System	<ul style="list-style-type: none"> • Instructor will discuss information about PLC's, show a demonstration of how PLC's work, different components of the PLC • Look at Chapter 16- Troubleshooting and Servicing the PLC System PowerPoint in Blackboard • Read Chapter 16- Troubleshooting and Servicing the PLC System in textbook • Complete Know and Understand questions at the end of the chapter of Chapter 16- Troubleshooting and Servicing the PLC System and submit answers in blackboard • Complete Chapter 16- Troubleshooting and Servicing the PLC System test in Blackboard 	
May 3		<ul style="list-style-type: none"> • Spring Semester Ends 	

Competency Areas:

1. PLC Hardware and Software
2. PLC Functions and Terminology
3. Introductory Numbering Systems
4. PLC Installation and Setup
5. PLC Programming Basics
6. Relay Logic Instructions
7. Timers and Counters
8. Connecting Field Devices to I/O Cards
9. PLC Safety Procedures

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