TENTATIVE—SUBJECT TO CHANGE
ELTR 1220 Industrial PLC's
HYBRID COURSE SYLLABUS
Spring Semester 2020

COURSE INFORMATION

Credit Hours/Minutes: 4/4500
Campus/Class Location: Vidalia Campus Main 429
Class Meets: Tuesday 5:00PM-7:45PM (60% F2F and 40% hybrid)
Course Reference Number (CRN): 40049
Preferred Method of Contact: Email

INSTRUCTOR CONTACT INFORMATION

Instructor Name: Tony Criswell
Email Address: Tony Criswell (tcriswell@southeasterntech.edu)
Campus/Office Location: Vidalia Main Building 429
Office Hours: Tuesday 1:00PM- 3:30PM; Thursday 1:00PM- 3:00PM
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 (http://www.southeasterntech.edu/student-affairs/catalog-handbook.php).

REQUIRED TEXT

Programmable Logic Controllers: Hardware and Programming, 4th edition; ISBN 978-1-63126-932-5; Publisher- Goodheart- Wilcox

REQUIRED SUPPLIES & SOFTWARE

Highlighter

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*. **Industrial Electrical Technology and Electrical Construction Technology program students must earn a minimum grade of C in this course.**

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: Macy Gay (mgay@southeasterntech.edu), 478-289-2274, Building 1, Room 1210
Vidalia Campus: Helen Thomas (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: Macy Gay (mgay@southeasterntech.edu), 478-289-2274, Building 1, Room 1210
Vidalia Campus: Helen Thomas (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 accessed 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

The Technical College System of Georgia (TCSG) and its constituent Technical Colleges do not discriminate on the basis of race, color, creed, national or ethnic origin, gender, religion, disability, age, political affiliation or belief, genetic information, disabled veteran, veteran of the Vietnam Era, spouse of military member, or citizenship status (except in those special circumstances permitted or mandated by law). This nondiscrimination policy encompasses the operation of all technical college-administered programs, federally financed programs, educational programs and activities involving admissions, scholarships and loans, student life, and athletics. It also applies to the recruitment and employment of personnel and contracting for goods and services.

All work and campus environments shall be free from unlawful forms of discrimination, harassment and retaliation as outlined under Title IX of the Educational Amendments of 1972, Title VI and Title VII of the Civil Rights Act of 1964, as amended, the Age Discrimination in Employment Act of 1967, as amended, Executive Order 11246, as amended, the Vietnam Era Veterans Readjustment Act of 1974, as amended, Section 504 of the Rehabilitation Act of 1973, as amended, the Americans With Disabilities Act of 1990, as amended, the Equal Pay Act, Lilly Ledbetter Fair Pay Act of 2009, the Georgia Fair Employment Act of 1978, as amended, the Immigration Reform and Control Act of 1986, the Genetic Information Nondiscrimination Act of 2008, the Workforce Investment Act of 1998 and other related mandates under TCSG Policy, federal or state statutes.

The Technical College System and Technical Colleges shall promote the realization of equal opportunity through a positive continuing program of specific practices designed to ensure the full realization of equal opportunity.

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 1st Street, Vidalia Office 165 Phone: 912-538-3126 Email: Helen Thomas hthomas@southeasterntech.edu	Lanie Jonas, Director of Human Resources Vidalia Campus 3001 East 1st Street, Vidalia Office 138B Phone: 912-538-3230 Email: Lanie Jonas ljonas@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).

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
Chapter Review Questions	10%
Labs	60%
Chapter Exams	30%
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 2020 Hybrid Lesson Plan

Date/Week	Chapter/Lesson	Content	Assignments & Tests Due Dates	Competency Area
January 7	Class Introduction	Syllabus, Outline, Lab Rules & Regulations coverage	• Instructor will go over syllabus, lesson plan, lab rules, how to access the hybrid portion of the class and introduction of PLC's • Getting Started – Start Here Items: • Read all items • Complete STC Pledge Acknowledgement	
January 9-January 16	1	Programmable Logic Controller (PLC) Overview	**In Class** • Instructor will discuss information about PLC's, show a demonstration of how PLC's work, different components of the PLC **Hybrid** • Read Chapter 1- Programmable Logic Controller (PLC) Overview of Textbook Pages 2-17 • Look at Chapter 1 PowerPoints in Blackboard • Answer Chapter 1 Review Questions • Complete Chapter 1 Exam in Blackboard under exams	1,2,9 a,b,c
January 21-January 28	2	PLC Selection, Components, and Communication	**In Class** • Instructor will discuss how to select PLC components and communication setup for PLC's. Show different types of communication and components **Hybrid** • Read Chapter 2- PLC Selection, Components, and Communication in textbook Pages 18-40 • Look at Chapter 2 PowerPoints in Blackboard • Answer Chapter 2 Review Questions 1-7 and 9-15 on pages 40-41 • Complete Chapter 2 Exam in Blackboard under exams	1,2,9 a,b,c

Date/Week	Chapter/Lesson	Content	Assignments & Tests Due Dates	Competency Area
January 30- February 6	3	Number Systems and Codes	**In Class** • Instructor will discuss the different numbering systems and codes used for PLC's and their importance **Hybrid** • Read Chapter 3- Number Systems and Codes in textbook Pages 42-55 • Look at Chapter 3 PowerPoints in Blackboard • Answer Chapter 3 Even Number Review Questions on pages 56-57 • Complete Chapter 3 Exam in Blackboard under exams	3 a, b, c
February 11 - February 18	4	Input/Output Devices and Motor Controls	**In Class** • Instructor will discuss and demonstrate the different types input/output devices and motor control symbols that are used in hooking up field devices **Hybrid** • Read Chapter 4- Input/Output Devices and Motor Controls in textbook Pages 58-77 • Look at Chapter 4 PowerPoints in Blackboard • Answer Chapter 4 Review Questions • Complete Chapter 4 Exam in Blackboard under exams	4,5,6 a, b, c
February 20- February 27	5	Creating Ladder Logic Diagrams	**In Class** • Instructor will discuss and demonstrate how to create ladder logic diagrams and how to us the software **Hybrid** • Read Chapter 5- Creating Ladder Logic Diagrams in textbook Pages 80-89 • Look at Chapter 5 PowerPoints in Blackboard • Answer Chapter 5 Review Questions on page 89, which include drawing relay logic diagrams • Complete Chapter 5 Exam in Blackboard under exams	5,6 a, b, c

Date/Week	Chapter/Lesson	Content	Assignments & Tests Due Dates	Competency Area
March 3- March 10	6	PLC Programming	**In Class** • Instructor will discuss and demonstrate how to program PLC's • Students will do Labs 1-3 the PLC Trainer Lab Manual **Hybrid** • Read Chapter 6- PLC Programming in textbook Pages 90-119 • Look at Chapter 6 PowerPoints in Blackboard • Answer Chapter 6 Review Questions on page 119, which include drawing relay logic diagrams • Complete Chapter 6 Exam in Blackboard under exams	5 a, b, c
March 12- March 19	7	Programming Logic Gate Functions in PLC's	**In Class** • Instructor will discuss and demonstrate Programming Logic Gate Functions in PLC's • Students will do Labs 4-5 in the PLC Trainer Lab Manual **Hybrid** • Read Chapter 7- Programming Logic Gate Functions in PLC's in textbook Pages 126-155 • Answer Chapter 7 Review Questions Number 1-42 on pages 155-156 • Look at Chapter 7 PowerPoints in Blackboard • Complete Chapter 7 Exam in Blackboard under exams	5,6 a, b, c
March 24- March 31	8	PLC Timer Instructions	**In Class** • Instructor will discuss and demonstrate PLC Timer Instructions • Students will do Lab 6 in the PLC Trainer Lab Manual **Hybrid** • Read Chapter 8- PLC Timer Instructions in textbook Pages 164-182 • Answer Chapter 8 Review Questions Number 1-32 on pages 182-183 • Look at Chapter 8 PowerPoints in Blackboard • Complete Chapter 8 Exam in Blackboard under exams	7 a, b, c

Date/Week	Chapter/Lesson	Content	Assignments & Tests Due Dates	Competency Area
April 2- April 16	9	PLC Counter Instructions	**In Class** • Instructor will discuss and demonstrate PLC Counter Instructions • Students will do Lab 7 in the PLC Trainer Lab Manual **Hybrid** • Read Chapter 9- PLC Counter Instructions in textbook Pages 188-200 • Answer Chapter 9 Review Questions Number 1-34 on pages 200-201 • Look at Chapter 9 PowerPoints in Blackboard • Complete Chapter 6 Exam in Blackboard under exams	7 a, b, c
April 21- April 28	PNL Labs 29, 31, 32, 35, 37, 44	Hardwire of PLC	**In Class** • Instructor will discuss Troubleshooting and Service of PLC's • Students will complete PLC Labs on a Pneumatic Trainer **Hybrid** • Read Chapter 16- Troubleshooting and Servicing the PLC System in textbook Pages 318-329 • Answer Chapter 16 Review Questions Number 1-9 on page 329 • Look at Chapter 16 PowerPoints in Blackboard • Complete Chapter 16 Exam in Blackboard under exams • Compete Instructor Evaluation in Banner	9 a,b,c

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