

FLORIDA STATE COLLEGE AT JACKSONVILLE

COLLEGE CREDIT COURSE OUTLINE

COURSE NUMBER: EST 1542

COURSE TITLE: Introduction to Programmable Logic Controllers

PREREQUISITE(S): EST 1511 and EST 1700

COREQUISITE(S): None

CREDIT HOURS: 3

CONTACT HOURS/WEEK: 4

CONTACT HOUR BREAKDOWN:

Lecture/Discussion:	3
Laboratory:	1
Other _____:	

FACULTY WORKLOAD POINTS: 3.67

STANDARDIZED CLASS SIZE ALLOCATION: 24

CATALOG COURSE DESCRIPTION:

This course introduces various programmable logic controllers and how each interfaces with hydraulic, pneumatic, and electrical controls for automated applications. Laboratory experiences include the design and troubleshooting of ladder logic programs, working with counters, registers, decoders, and digital to analog converters, analog to digital converters, and storage devices. The latest programmable logic controllers from the leaders in the industry will be used as the processors for control applications, rung programming, sequencers, data manipulation instruction, file-to-file moves, and graphics. Communications between the processors on the same platforms will be over a Data Network that is selective to each PLC manufacturer. The course concludes with an individual student project involving the Programmable Logic Controller and electro-mechanical control of an industrial application.

SUGGESTED TEXT(S): Programmable Logic Controllers, Latest edition
by Frank D. Petruzella, McGraw Hill Publishing Company
ISBN: 0-07-829852-0

IMPLEMENTATION DATE: Fall Term, 2002 (20031)

REVIEW OR MODIFICATION DATE: Fall Term, 2009 (20101) - Proposal 2009-11

COURSE TOPICS	<u>CONTACT HOURS PER TOPIC</u>
I. Programmable Logic Controllers: An Overview	4
II. Programmable Logic Controller Hardware Components	4
III. Number Systems and Codes	4
IV. Fundamentals of Logic	4
V. Basics of Programming	4
VI. Developing Fundamental PLC Wiring Diagrams ad Ladder Logic Programs	4
VII. Programming Timers	3
VIII. Programming Counters	3
IX. Programming Exercises - Siemens and Allen Bradley Programming Software	30



NOTE: Use either the Tab key or mouse click to move from field to field. The box will expand to accommodate your entry.

Section 1		
COURSE PREFIX AND NUMBER: EST1542		SEMESTER CREDIT HOURS: 3
COURSE TITLE: Introduction to Programmable Logic Controllers		
Section 2		
TYPE OF COURSE: (Click on the box to check all that apply)		
<input type="checkbox"/> AA Elective	<input checked="" type="checkbox"/> AS Required Professional Course	<input type="checkbox"/> College Prep
<input type="checkbox"/> AS Professional Elective	<input type="checkbox"/> AAS Required Professional Course	<input type="checkbox"/> Technical Certificate
<input type="checkbox"/> Other _____		
<input type="checkbox"/> General Education: (For General Education courses, you must also complete Section 3 and Section 7)		
Section 3 (If applicable)		
INDICATE BELOW THE DISCIPLINE AREA FOR GENERAL EDUCATION COURSES:		
<input type="checkbox"/> Communications	<input type="checkbox"/> Social & Behavioral Sciences	<input type="checkbox"/> Mathematics
<input type="checkbox"/> Natural Sciences	<input type="checkbox"/> Humanities	
Section 4		
INTELLECTUAL COMPETENCIES:		
<input checked="" type="checkbox"/> Reading	<input checked="" type="checkbox"/> Speaking	<input checked="" type="checkbox"/> Critical Analysis
<input checked="" type="checkbox"/> Writing	<input checked="" type="checkbox"/> Listening	<input type="checkbox"/> Information Literacy
	<input type="checkbox"/> Ethical Judgment	<input checked="" type="checkbox"/> Scientific Method of Inquiry
		<input checked="" type="checkbox"/> Working Collaboratively
Section 5		
	LEARNING OUTCOMES	METHOD OF ASSESSMENT
• 1	Chart and analyze ladder logic diagrams for industrial automation systems.	Hands-on, application, or software/hardware exercises
• 2	Identify PLC input and output module locations.	Hands-on applications exercises
• 3	Identify when a programmable controller is in run or program mode.	Hands-on application exercises
• 4	Interpret flow charts to match field device components with the real devices.	Hands-on applications exercises
• 5	Integrate control systems and equipment with production and production support mechanisms.	Hands-on, application, or software/hardware exercises.
• 6	Apply troubleshooting techniques to identify root cause, errors and faults of a problem.	Hands-on, trouble shooting exercises.
• 7	Isolate systems for troubleshooting	Hands-on, trouble shooting exercises. Written tests.
• 8	Develop a strategy for making system improvements based on troubleshooting activities.	Trouble shooting exercise group discussions.
Section 6 Name of Person Completing This Form: <u>Evan Kuharic</u> Date: <u>05/6/08</u>		