

**EEAS 223 – INDUSTRIAL CIRCUITS:  
ADVANCED PROGRAMMABLE LOGIC CONTROLLERS**  
*SPRING 2011*

<b>INSTRUCTOR:</b>	J. Koepke, P.E.
<b>OFFICE:</b>	T1068
<b>PHONE:</b>	(815) 280-2611
<b>E-MAIL:</b>	jkoepke@jjc.edu
<b>PREREQUISITE:</b>	EEAS 221 or consent of the EEAS advisor
<b>TEXT (Recommended):</b>	<u>Fundamentals of Programmable Logic Controllers, Sensors and Communications</u> , Stenerson, 3 <sup>rd</sup> ed.
<b>SOFTWARE:</b>	<u>LogixPro PLC simulator</u> , The Learning Pit
<b>COURSE DESCRIPTION:</b>	This course deals with the basic operation, application and programming of an integrated industrial control system, concentrating on the industrial microprocessor programmable logic controller (PLC). The course covers uses of PLCs, product ranges, benefits numbering systems and codes and logic concepts pertaining to PLCs. The student will develop an understanding of the PLC central processing unit, input-output systems, programming and peripheral devices, and programming languages. Additionally, the student will develop skills in programming and documentation procedures.
<b>TESTS:</b>	Tests will cover material presented during lectures, discussions, homework and labs as well as selected information from the textbook.
<b>QUIZZES:</b>	Quizzes will cover lecture material, homework assignments and lab material presented in the associated lesson. Each lesson and lab will have a quiz to complete. Quizzes must be completed in the allowed time frame. (No make-up quizzes)
<b>HOMEWORK:</b>	Homework will cover subject material from the previous lecture; students shall be prepared to discuss the solutions in class.
<b>ATTENDANCE:</b>	<b>Making up missed work:</b> Attendance is essential to learning, if you must miss class, get the assignments, handouts, and lecture notes from Black Board. Do not expect the instructor to give them to you at the next session. Due dates are not extended except (rarely) by specific permission from the instructor.  <b>Make up testing</b> is allowed at <b>instructor's discretion</b> and convenience, but you <b>must</b> notify in <b>advance</b> if you will miss a test or quiz; otherwise, typically, no make-up will be given.

**Excused absence:** Examples of excused absence: Serious illness or injury, death in the family, car failure, court appearance, JJC field trip, mandatory overtime, and traffic accidents. Prolonged or repeated absence, even for acceptable reasons, will prevent you from learning the material.

**DROP/WITHDRAW:** “At any time prior to the deadline dates established, an instructor may withdraw a student from class because of poor attendance, poor academic performance, inappropriate academic behavior such as, but not limited to, cheating or plagiarism, disregard for safety rules or for improper conduct.” (See the College Catalog)

**If you decide to drop** due to excessive absences or other reasons, be sure you do the withdrawal paperwork before the last drop date. **Do not** simply stop coming to class.

**CONDUCT:** Professional standards of dress, courtesy, ethics, speech, and behavior are expected at all times. Bad conduct will result in disciplinary action, which may include dismissal. Especially, **academic misconduct** (plagiarism, cheating, copying) will not be tolerated. Committing some form of academic misconduct will lead to a zero on the test, quiz or homework in question. See the student handbook for more information.

**CELLPHONES:** Please turn them off.

**ANGEL SOFTWARE:** We will be using the Angel classroom support software this semester. You can access this via the internet from your home or workplace. You will find announcements, course documents, assignments, quizzes, tests and other information posted there. **Also check your campus email account**, which was created automatically when you registered for classes.

**TECHNICAL ASSISTANCE:** For technical problems related to the use of Angel, you should check the 24/7 Support Center website at [www.jjc.edu/help](http://www.jjc.edu/help) where you may find a solution to your problem. Technicians are also available by phone 24 hours a day 7 days a week 365 days a year to answer your Angel related questions at 866-361-8864.

**ACADEMIC ASSISTANCE:** Students may wish to utilize the many services offered by the Academic Skills Center (J2013-Main Campus). Some students, for example, may schedule appointments with tutors in the ASC, who are available at no cost to provide assistance. Conferences may also be arranged with the instructor during office hours or by special appointment.

**Academic Skills Center**

Main Campus: J-2013

Phone: (815) 280-2261 or (815) 280-2284

Email: [lkolesar@jjc.edu](mailto:lkolesar@jjc.edu)

**Hours:** (check for time changes)

Monday – Thursday: 7:30am – 7:30pm

Friday: 7:30am – 4:30pm

Saturday: closed

**SPECIAL NEEDS:**

Students with documented disabilities, including a learning disability, who require special accommodations, should identify themselves during the first few weeks of the semester. Please contact me privately at your earliest convenience so that we may discuss your special needs.

**Student Accommodations and Resources**

Main Campus: J-2025

Karen Strysik

Administrative Assistant

Phone: (815) 280-2230

Fax: (815) 280-2820

Email: [kstrysik@jjc.edu](mailto:kstrysik@jjc.edu)

**Hours:** (check for time changes)

Monday – Friday: 7:30am – 4:00pm

**COMPUTER USE:**

Students are encouraged to use the lab systems for email and internet research etc. subject to school policy (see student handbook).

**EVALUATION:**

Labs	20%
Homework/ Quizzes	20%
Mid-Term Exam	30%
Final Project	30%

**GRADING SCALE (%):**

92 to 100	A
84 to 91	B
76 to 83	C
65 to 75	D
Below 65	F

**CANCELLATION:**

When classes are cancelled due to weather conditions, the college will post this information on its website: [www.jjc.edu](http://www.jjc.edu) or will notify area radio and television stations (see the Course Catalog).

*Note:* The Syllabus and course content are subject to change.

## EEAS 223 Course Outline

Lesson	Text Section	Topic
1	Chapter 2 – 7 Class Notes	Review of Programmable Logic Controller (PLC) Operations, Timers, Counters
2	Chapters 8 and 9 Class Notes	Advanced Instructions
3	Chapters 8 and 9 Class Notes	Binary Arithmetic, Data Manipulation Instructions, Memory Allocations
4	Chapter 9 Class Notes	Sequencing and Register Instructions
5	Chapter 22 and 23 AB Manuals Class Notes	PLC Selection, System Design and Layout
6	Chapter 12 Class Notes	IEC 61131-3 Programming
7	Chapter 16 Class Notes	PC-Based Control
8	Chapter 14 Class Notes	Introduction to Data Communications
9	Class Notes	Graphical Interfacing
10	Chapter 6 Class Notes	Analog
11	Class Notes	Data Acquisition
12		Final Project Selection
13		Final Project Design
14		Final Project Construction
15		<b><i>Final Project Presentation</i></b>