

<http://www.personal.kent.edu/~asamba/tech43550>

**Instructor:** Augustine Samba, BS (Math), MS (Applied Math), Ph.D. (Computer Science)  
**E-mail:** [asamba@kent.edu](mailto:asamba@kent.edu)

**Office:** VDH 209  
**Telephone:** (330) 672-9868

**Class Hours:** 2:15 – 3:55, TR

**Office Hours:** 11:00 - 12:00 TR or by appointment

**Credit:** 3 Credit Hours

### **Course Description**

The first part of the course focuses on programming industrial controllers, called Programmable Logic Controllers (PLC) with an emphasis on the design of the programs. Topics covered include basic ladder logic programming, organization and addressing of the memory and I/O for sample PLCs, timers, counters, and ladder logic program design for sequential applications. In the second part of the course, we will discuss the fundamentals of Computer Numerical Control (CNC) programming including CNC simulations, programming techniques for turning and milling operations; and if we have time, the CAD/CAM interface.

### **Textbook**

- Programmable Logic Controllers: An Emphasis on Design and Application  
by Kelvin T. Erickson. Dogwood Valley Press, ISBN 0-9766259-0-3
- The CNC Workshop (Version 2.0). A Multimedia Introduction to Computer Numerical Control  
by Frank Nanfara, Tony Uccello & Derek Murphy. Prentice Hall, 2002 ISBN 0-13-091412-6

### **Prerequisites**

Undergraduate level [TECH 23581](#) Minimum Grade of C

### **Labs**

This course includes Lab exercises that provide hands on experience with concepts covered in the lectures. Your **lab assignments** will account for **50%** of your overall grade. Turning in a complete lab assignment requires that you:

1. Email lab reports to [asamba@kent.edu](mailto:asamba@kent.edu), by midnight of the due date.
2. Submit hardware/ hardcopy of any written work on the due date that class resumes.

There will be a deduction of 10% per day, every day for late programs

### **Homework**

Homework will be assigned periodically throughout the semester. The **homework** will account for **10%** of the overall grade. There will be a deduction of 10% per day, every day for late homework assignments

**Test**

There will be two tests. **Each test** will account for **10%** of your overall grade. The scope, date and policy for each test will be discussed during class time, about a week before each test.

**Final Exam**

The **final exam** is comprehensive, and will account for **20%** of your overall grade. The Final exam is scheduled as follows:

- Date: Friday, Dec 17, 2010
- Time: 12:45 – 3:00 PM
- Room: VDH 105

**Grading**

Grades will be assigned based on the range of percentages indicated below:

Grade Level	Percentage
A	93% <= score < 100%
A-	90% <= score < 93%
B+	87% <= score < 90%
B	83% <= score < 87%
B-	80% <= score < 83%
C+	77% <= score < 80%
C	73% <= score < 77%
C-	70% <= score < 73%
D+	67% <= score < 70%
D	60% <= score < 67%
F	0% <= score < 59%

**Coursework**

The student is responsible for obtaining missed notes, assignments, and completing the lab exercises. Late assignments will not be accepted without a valid excuse. In the event that a student misses a test/quiz/lab assignment, a zero may be assigned for the test/quiz/lab assignment score. A make-up test or exam may be allowed only in the case of an excused absence or a documented valid emergency. If a student will be unable to attend a class, please let the instructor know in advance.

**Students with Disabilities**

In accordance with University policy, if a student has a documented disability and requires accommodations to obtain equal access in this course, they are to contact the instructor at the beginning of the semester or when given an assignment for which an accommodation is required. Students with disabilities must verify their eligibility through the Office of Student Disability Services (SDS) in the Michael Schwartz Student Services Center - (330) 672-3391.

Usually you are contacted by mail from the SDS office informing you that a student requiring special

accommodations is in your class. Within the first few days students with disabilities will introduce themselves and also present you with this information. Discussions with students regarding any special needs are confidential and should be done privately.

Special accommodations usually range from providing a larger typeface on exams, notes, etc. to allowing extra time on exams. The SDS Office has facilities for monitored testing and the students usually schedule a time to take the exam there after consultation with you. It is your responsibility to make sure the test is at the SDS Office before the scheduled test time.

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**ADMINISTRATIVE POLICY AND PROCEDURES REGARDING STUDENT CHEATING AND  
PLAGIARISM***Condensed Version*

For complete policy and procedure go to [www.kent.edu/policyregister\\_3342-3-01.8](http://www.kent.edu/policyregister_3342-3-01.8).

Cheating and plagiarism constitute fraudulent misrepresentation for which no credit can be given and for which appropriate sanctions are warranted and will be applied.

The university affirms that acts of cheating and plagiarism by students constitute a subversion of the goals of the institution, have no place in the university and are serious offenses to academic goals and objectives, as well as to the rights of fellow students.

"Cheat" means to intentionally misrepresent the source, nature, or other conditions of academic work so as to accrue undeserved credit, or to cooperate with someone else in such misrepresentation. Cheating includes, but is not limited to:

1. Obtaining or retaining partial or whole copies of examinations, tests or quizzes before these are distributed for student use;
2. Using notes, textbooks or other information in examinations, tests and quizzes, except as expressly permitted;
3. Obtaining confidential information about examinations, tests or quizzes other than that released by the instructor;
4. Securing, giving or exchanging information during examinations;
5. Presenting data or other material gathered by another person or group as one's own;
6. Falsifying experimental data or information;
7. Having another person take one's place for any academic performance without the specific knowledge and permission of the instructor;
8. Cooperating with another to do one or more of the above;
9. Using a substantial portion of a piece of work previously submitted for another course or program to meet the requirements of the present course or program without notifying the instructor to whom the work is presented; and
10. Presenting falsified information in order to postpone or avoid examinations, tests, quizzes, or other academic work.

“Plagiarize” means to take and present as one’s own a material portion of the ideas or words of another or to present as one’s own an idea or work derived from an existing source without full and proper credit to the source of the ideas, words, or works. As defined, plagiarize includes, but is not limited to:

- a. The copying of words, sentences and paragraphs directly from the work of another without proper credit;
- b. The copying of illustrations, figures, photographs, drawings, models, or other visual and nonverbal materials, including recordings of another without proper credit; and
- c. The presentation of work prepared by another in final or draft form as one’s own without citing the source, such as the use of purchased research papers.

**Academic Sanctions**

The following academic sanctions are provided by this rule for offenses of cheating or plagiarism. Kent campus instructors shall notify the department chairperson and the student conduct office each time a sanction is imposed. Regional campus instructors shall notify the regional campus dean and the student conduct officer each time a sanction is imposed. Regional campus student conduct officer shall notify the Kent student conduct office each time a sanction is imposed by a regional campus Instructor. The following academic sanctions are provided by this rule for offenses of cheating or plagiarism. In those cases the instructor may:

1. Refuse to accept the work for credit; or
2. Assign a grade of "F" or zero for the project, test, paper, examination or other work in which the cheating or plagiarism took place; or
3. Assign a grade of "F" for the course in which the cheating or plagiarism took place; and/or;
4. Recommend to the department chair or regional campus dean that further action specified in the rule be taken. The department chairperson or regional campus dean shall determine whether or not to forward to the academic dean or to the vice president for the extended university a recommendation for further sanction under this rule.

**Academic Appeals**

The general principle that applies to the following procedures is that an appeal is directed to the administrative level immediately above the unit from which the appeal emanates.

Appeals are limited to the following reasons:

- a. The decision is arbitrary or unreasonable,
- b. The decision resulted from a procedural error,
- c. The decision is not in accordance with the facts presented,
- d. New information is available which may suggest modification of the decision.

For complete policy and procedure go to [www.kent.edu/policyregister\\_3342-3-01.8](http://www.kent.edu/policyregister_3342-3-01.8).