AET 2324
Electronic Control Systems
(2 class - 2 lab - 3 credits)

Course Description:

- An introduction to basic electrical industrial control concepts. Topics included basic electrical concepts, basic electrical automation and control concepts, introduction to loads and actuators, control sequencing and data acquisition fundamentals.

Prerequisite:

- MAT 1270 - Algebra I

Text(s):


Reference(s):

- [http://www.electronics-tutorials.ws/](http://www.electronics-tutorials.ws/)
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Class meeting:

- Monday and Wednesday from 2 to 3:40 pm

Objectives:

- To introduce basic control concepts as they apply to industrial automation and control systems.
- To explore the various loads and actuators which utilize electrical energy.
- To explore the basic elements of control circuits and systems as applied to industrial automation/control systems.
- To introduce computer process control theory and applications.
- To introduce computer control sequencing and the use of flowcharting to describe control programs.
- To implement programs on appropriate control interfaces or microcontrollers/plcs.
- To introduce the characteristics and requirements of electrical power sources/systems.
- To introduce electronic digital data acquisition.

Responsibilities:

- Be prepared for class by reading assigned materials, preparing appropriate questions, completing assigned projects, etc. You MUST HAVE a CALCULATOR (TI 30XIIS is preferable) for every class meeting.
- Attend all classes and be on time. Impromptu quizzes worth 5 to 10 points will be given at the beginning of class at least once a week. There are no make-up privileges for these quizzes.
You will be assigned to a group (no more than 3 to a group) to complete laboratory activities. Each group will be assigned to a specific trainer board. You will only be allowed to work at the trainer board you are assigned. You may not jump to another group if laboratory partners are not in attendance.

The university's policy on academic integrity will be followed. This policy addresses five specific topics: conduct in subversion of academic standards, theft or unauthorized possession of examinations, submitting worked previously presented and another course, conduct which disrupts the academic environment, and complicity with others in violation of the standards. Plagiarism is the use, without adequate attribution, of another person's words or thoughts as if they were ones own. Do not cheat. Cheating and plagiarism are not appropriate at anytime and may result in dismissal from the class.

Do not disturb the class with pagers, cell phones, tape recorders, CD players, etc.

Lectures will be assessable from WebCT for this course.

Only use the following email address to communicate with me about course assignments, issues, etc. - jmckirahan@eiu.edu.

LABORATORY ASSIGNMENTS - YOU WILL NEED TO PURCHASE THE LABORATORY MANUAL FOR THIS CLASS FROM COPY EXPRESS LOCATED IN THE MLK STUDENT UNION. The lab manual will be turned in the 4th week, 8th week, 12th, week, and 16th week of class. They are due to date they are assigned to be turned in. TURNED IN LATE MANUALS WILL NOT BE GRADED.

YOU MUST HAVE your laboratory manual with you when a laboratory is completed by you in order for points to be awarded for performing laboratories.

Students with Disabilities:

If you have a documented disability and wish to discuss academic accommodations, please contact the coordinator of the Office of Disability (581-6583) as soon as possible.

Open Labs:

The Automation and Control lab is available on Tuesday's and Thursday's for open lab time for the purpose of providing additional laboratory time for you who find it difficult to accomplish lab assignments during the regular class time, and for those of you who want to go beyond the course requirements in developing expertise in the area of automation and control. THE OPEN LAB IS NOT TO BE CONSIDERED AS A SUBSTITUTE FOR CLASS ATTENDANCE. A Graduate Assistant will be available and possibility a student worker as well. However, although these people are available for help with minor problems, their responsibilities are not to provide instruction or tutorial assistance because of missed classes. Each of you using the open lab should understand the purpose and procedure of the laboratory assignment before attempting to accomplish it during an open lab.

Additional Costs:

Consumable items, breakage of components and parts as well as duplication of assignments, etc. cost is $15.00 (lab fee).

You will also need to purchase the lab manual from Copy Express for about $5.00. This cost solely covers the cost of printing and paper.

Course Requirements:

TESTS - At least two of which one will be the Final Exam

QUIZZES — These are often unannounced and based upon assigned readings and in-class lectures.

LABORATORIES – A series of labs on topics in the class. Full attendance and participation during each class meeting identified for labs is required to receive the full credit earned in this aspect of the class.
Evaluation:

- Final grade is calculated using the following distribution and a letter grade will be assigned as follows

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<tr>
<td>A</td>
<td>100% to 90%</td>
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- Tests = 100 points, Quizzes = 5 or 10 points, Laboratories = 10 points.
AET 2324 Class Information Acknowledgement

I, (Print your name: )_____________________________ understand that:

1) I must purchase a laboratory manual by August 26th, 2011 from Copy Express, located on the third floor of the student union, in order to use it to begin doing my laboratories for this class.

2) It is my responsibility to bring a CALCULATOR (TI 30XIIS is preferable) to class for every class meeting and I WILL NOT ask to use the instructor or any others calculator if I do not bring a calculator to class. In NOT BRINGING a calculator to class I understand will be unable to performing laboratories or do in-class instruction examples vital to understanding the content provided in this class.

3) I must arrange laboratory times outside of in-class meeting times with the graduate assistant in order to conduct laboratories outside of regularly scheduled classes.

4) I must turn in my laboratory manual for evaluation purposes during the 4th week, 8th week, 12th week, and 16th week of the semester and that if I miss the turn-in date no points will be awarded for laboratories completed up to those weeks. It also means that I cannot turn my laboratory manual in late during those weeks.

5) I must have my laboratory manual with me in order to receive credit by the instructor or graduate assistant when performing the laboratories.

Signed,

Your signature:________________________________________ (Date: ) ___________