

AGSM 470 - Agricultural Electronics and Controls Fall 2017 Syllabus

Instructor:	Teaching Assistant
Mr. Greg Stark, P.E.	Andrew Garcia-Rameau
320 Scoates Hall	
Phone: 979-845-3949	
e-mail: gstark@tamu.edu	
Office Hours: Tuesday: 9:30 a.m. -12 noon Thursday: 9:30 a.m. -12 noon Or by appointment	By Appointment

Catalog Description:

AGSM 470. Agricultural Electronics and Control. (2-2) Credit 3. I Technology of electronic systems in agricultural production and processing, sensors, actuators, hardwired controllers, programmable controllers, and process computers.

Lecture:

Monday & Friday, 10:20 to 11:10 a.m., Room 632 Harrington Tower (EDCT)

Lab:

Section 501: Monday, 12:40 to 2:30 p.m., Room 318 Scoates

Section 502: Monday, 3:00 to 4:50 p.m., Room 318 Scoates

During most of the labs we will be using a computer program called “The Constructor” which you will have access to in Scoates 318 and the main department computer lab (Scoates 214).

Prerequisites:

Electrical Motor Controls for Integrated Systems. 2014. Gary Rockis & Glen Mazur, Fifth Edition. American Technical Publishers, Inc. (*Earlier editions of this book have been adequate for students in the past. In some editions the chapters are numbered differently and/or one or two questions on the end of chapter problems/questions are different.*)

Course Overview:

This course is designed to teach a person with basic electrical knowledge how agri-business and industrial machines are controlled starting with basic concepts such as 2 and 3 wire control systems advancing to increasingly complex systems including the applications and limitations of Programmable Logic Controllers (PLCs). In addition to an emphasis on the applications of this technology, the language of how to read and understand control diagrams, ladder diagrams and wiring diagrams will be taught. Students will also learn how to write PLC programs and enter and run them on PLC's.

Course Objectives:

When you complete this course, you should be able to do the following:

1. Read and understand ladder diagrams.
2. Read and understand wiring diagrams.
3. Understand basic control concepts for electrical equipment.
4. Understand application of Programmable Logic Controllers (PLCs) in control systems.
5. Incorporate control systems into management of technology to enhance worker safety and productivity.

Grading:**Homework (15%)**

Homework will be assigned throughout the semester and will be due at the next class period. Late homework will be accepted when prior-arrangements have been made or a University excused absence is provided. Late homework without prior arrangements/excused absences will be accepted up to one week late for a score of 50% of the normal earned grade on the assignment. There will be approximately 10 homework assignments throughout the semester. NEATNESS COUNTS!

Laboratory Exercises (25%)

There will be approximately 10 lab assignments for the semester. No laboratories will be made up without prior arrangements or a University excused absence. Late laboratory assignments will be accepted when prior arrangements have been made or a University excused absence has been provided. Late labs without prior arrangements/excused absences will be accepted up to one week late for a score of 50% of the normal earned grade. Labs will be graded for technical content, spelling, grammar, and professional appearance. Note that Lab is 25% of your overall grade and NEATNESS COUNTS!

Exams (60% or 20% each)

There will be three exams (20% each) given during the semester on or near the dates shown below in the syllabus (announcements by the instructor take precedence). The exams will be open book and open notes. No early or late exams will be given except in cases of University excused absence or prior arrangement with the instructor.

No Final Exam (0%); There will be NO final comprehensive exam in the course.

Final Grades: Grades will be calculated on the following percentage/point breakdown:

Activity	Point Value
Homework:	150
Laboratory:	250
Test 1	200
Test 2	200
Test 3	200
Total Points:	1000

Letter grades will be assigned after course averages have been calculated. The instructor reserves the right to scale grades up or down at the end of the semester based on class performance.

PLAN OF STUDY

This is a general outline of the topics/timetable planned for the course, which is subject to change. The lecture topics on specific dates and tests are not set in stone and class announcements by the instructor will supersede the following plan of study.

Assignments will generally be posted on the course e-campus website found on Howdy.

Week Beginning (date)	Topic	Chapter
8/28	Instruments/Symbols/Line Diagrams	4
9/4	Logic/Line Diagrams	5
9/11	Solenoids/Contactors	6
9/18	Magnetic Contactors and Starters	8
9/25	Control Devices	9
10/2	Reversing Circuits, Test 1	10
10/9	Solid State Devices	12
10/16	Time Delay & Logic	13
10/23	Solid State Relays	14
10/30	Photo Control & Proximity	15
11/6	Industrial Sensors and Controllers, Test 2	15
11/13	Programmable Controls	16
11/20	Programmable Controls	Handout
11/27	Preventative Maintenance/Troubleshooting	19
12/12	Test 3	***

Chapter 1, 2 & 3 will not be covered in lecture but you are responsible for the material.

Please see the instructor and communicate any special needs or arrangements you anticipate during the course so that accommodations or scheduling changes can be made in a timely manner.

University Regulations:

You are reminded of the following university regulations:

- It is the responsibility of the student to be sure that course prerequisites are met. (TAMU Reg 3)
- Class attendance is an individual student responsibility. (TAMU Reg 15)
- Classroom behavior will be maintained to insure the rights of all students to learn. (TAMU Reg. 40)
- The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you may have a disability inhibiting your learning experience here at Texas A&M, please contact the Department of Student Life; Disability Services in Room B118 of Cain Hall or at 845-1637. For additional information visit <http://disability.tamu.edu>
 - If you have a disability which may require alternate accommodations related to the requirements of this course, please inform the instructor and/or make an appointment with the instructor so that necessary alternative arrangements can be made.
- It is the responsibility of students and instructors to help maintain scholastic integrity at the university by refusing to participate in or tolerate scholastic dishonesty. (TAMU Reg 39)

Plagiarism

As commonly defined, plagiarism consists of passing off as one's own the ideas, words, writings, etc., which belong to another. In accordance with this definition, you are committing plagiarism if you directly copy the work of another person and turn it in as your own, even if you have the permission of that person.

Academic Integrity/Cheating

For many years, Aggies have followed a Code of Honor in an effort to unify the aims of all Aggies toward a high code of ethics and dignity;

Aggies do not lie, cheat or steal; nor do they tolerate those who do.

It functions as a symbol to all Aggies, promoting understanding and loyalty to truth and confidence in each other. Students should refer to the University policy on academic integrity found in the **Honor Council website:** <http://www.tamu.edu/aggiehonor/honorcouncil.php>.

If you have any questions regarding plagiarism or cheating, please consult the Texas A&M University Student Rules, under the section Scholastic Dishonesty. These procedures will be followed and enforced. All violations will be handled as specified by University Guidelines in this course to maintain an environment of academic honesty.