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**Instructor**

Carl Igo, PhD

Office: RAS 110

Office Hours: M-W 10:30-12:00, T-R 1:00-3:00 or by appointment

Email: [carl.igo@sulross.edu](mailto:carl.igo@sulross.edu)

Phone: 432-837-8260

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**Course Time and Location**

Lecture: M-W, 9:00-9:50 AM, Aug 26-Dec 4 2024

Lab: M, 3:00-4:40 PM, Aug 26-Dec 2 2024

**Credits: 3.0**

IT Room 103

IT Room 105

**Required Materials:** No required textbook

Access to Blackboard and SRSU email.

**Supplemental Materials:**

Articles, readings and videos as assigned – provided by instructor during the weekly learning module in which they are assigned.

**Course Description:** This course will cover the basic wiring requirements for agriculture buildings and agricultural electrical motors. An emphasis is placed on application and trouble shooting. Alternative power generation methods are also discussed.

**Course Objectives:** The primary purpose of this course is to develop students' knowledge and skills of electrical theory, installation, and trouble-shooting related to agricultural applications. Upon successful completion of this course students will:

1. use electricity safely and wisely;
2. manipulate Ohm's Law to determine amperage, voltage and resistance;
3. choose proper electrical components for specific applications;
4. demonstrate electrical wiring skills based on current National Electrical Code guidelines;
5. select appropriate electrical controls;
6. explain the common types of electrical circuits;
7. plan the circuit design for an agricultural building;
8. explain the theory and operation of electric motors;
9. select appropriate electric motors for agricultural applications; and
10. troubleshoot electrical component malfunctions.

**Course Syllabus:** Due to the organizational nature of the instructor, beyond this point, this syllabus is laid out in alphabetical order by topic. If, after reviewing the information presented here, you have questions about course access, assignments, policy etc. please do not hesitate to contact the instructor.

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**Academic Expectations:** According to SRSU Undergraduate Academic Regulations, students must:

- A. be regular and punctual in attending classes;
- B. be well prepared for classes;
- C. submit required assignments in a timely manner;
- D. take exams when scheduled;
- E. act in a respectful manner toward other students and the instructor and in a way that does not detract from the learning experience; and
- F. make and keep appointments when necessary to meet with the instructor.

In addition to the above items, students are expected to meet the additional course and behavioral standards as defined in this syllabus.

**Academic Integrity:** Students in this class are expected to demonstrate scholarly behavior and academic honesty in the use of intellectual property. A scholar is expected to be punctual, prepared, and focused; meaningful and pertinent participation is appreciated. Examples of academic dishonesty include but are not limited to: Turning in work as original that was used in whole or part for another course and/or instructor; turning in another person's work as one's own; copying from professional works or internet sites without citation; collaborating on a course assignment, examination, or quiz when collaboration is forbidden. On all work submitted for credit by students at the university, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

**Academic Writing:** Unless specifically noted otherwise, all written work submitted must be in Microsoft WORD™, double-spaced, 12-point Times New Roman font, pages numbered, and have 1" margins on all sides. All work submitted should follow APA 7<sup>th</sup> edition guidelines for formatting and bibliographical citations. Peer review of written work is an excellent practice and highly encouraged prior to submission of written assignments. Feedback will focus on creative problem solving and conceptual development of ideas.

In this course, you may utilize AI language models, including ChatGPT, as a resource to support your writing assignments. AI language models are powerful tools developed to generate text based on the input provided. It can provide suggestions, offer alternative phrasing, and help brainstorm ideas for your written work. While the AI language models can help refine your writing, it is important to remember that it is an AI system and not a substitute for your critical thinking and creativity. If you choose to use this tool, apply it as a supplement to your writing process and do not rely solely on its suggestions. Ultimately, you are responsible for the content and quality of your written assignment. Therefore, you should critically evaluate ChatGPT outputs for accuracy, potential bias, and relevancy. When utilizing AI language models, it is essential to ensure that your writing remains original and properly attributed, including citing outputs or text generated by ChatGPT. Please see the [How to cite ChatGPT in APA Style](#) resource. I encourage you to use AI language models to enhance your writing skills, experiment with its capabilities, and learn from its suggestions. If you have any questions or concerns regarding using AI language models for writing assignments, please discuss them with me. By acknowledging and understanding the appropriate use of AI language models, you can effectively incorporate this tool into your writing process, harnessing its potential to improve your written work while maintaining academic integrity and originality.

**Accommodations for Students:** Sul Ross State University (SRSU) is committed to equal access in compliance with the Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the student's responsibility to initiate a request each semester for each class. Students seeking accessibility/accommodations services must contact Mary Schwartze Grisham, LPC, SRSU's Accessibility Services Director or Ronnie Harris, LPC, Counselor, at 432-837-8203 or email [mschwartz@sulross.edu](mailto:mschwartz@sulross.edu) or [ronnie.harris@sulross.edu](mailto:ronnie.harris@sulross.edu). Office is located on the first floor of Ferguson Hall, room 112, mailing address is P.O. Box C122, Sul Ross State University, Alpine, Texas, 79832.

**Add /Drop Policy:** This course will follow the University drop/add policy and timeline.

**Assignment Policy:** It is expected that assignments will be submitted on or before the specified due date. *Assignments may be submitted after the due date and will be assessed a percentage penalty; submitted within 7 days = 15%; submitted 8-14 days = 30%; submitted 15 days & beyond = 50%.* Incompletes will only be assigned under extreme circumstances.

**Assistive/Service Animal Protocol:** At Sul Ross State University policy, assistive animal and service animals are under differing rules. Assistance animals are not permitted in classroom/labs; service animals, as defined under the ADA, are permitted anywhere on campus. For additional clarification reference the [SRSU Assistance Animal/Service Animal policy](#).

**Attendance:** Class participants will be treated as mature individuals who have developed a sense of responsibility for their education. As such, class participants will be held accountable for all material covered in class, despite valid reasons for absence. Attendance will be recorded at each class and lab session. In the case of emergency, students should contact the instructor as soon as possible after the emergency situation has been resolved. Documentation of a “university excused absence” will allow the student to make up missed work, but WILL NOT count towards earned attendance points.

**Health-Related Absences:** Please evaluate your own health status regularly and refrain from attending class and other on-campus events if you are ill. Students who miss class due to illness will be given opportunities to access course materials online. In the event of contagious illness, please do not come to class or to campus to turn in work. Instead notify the instructor by email about your absence as soon as practical, so that accommodations can be made. Please note that documentation (a Doctor’s note) for medical excuses is not required.

**Classroom Climate and Respect:** It is my intent, as course instructor, that students from all backgrounds and perspectives be well-served by this course, that students' learning needs be addressed both in and beyond the course, and that the multiplicity students bring to this course be viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful of all students. Your suggestions about how to improve the value of this course are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups.

The laboratory is used to exemplify and reinforce the concepts from the classroom. Hands-on participation is essential for successful completion of this course; therefore, each class member must come prepared, both physically and mentally, to take part in each class and lab activity. In the lab setting, appropriate PPE is expected and will be monitored by the instructor. Other specific classroom and laboratory rules will be discussed as appropriate.

We support a learning environment where individual and cultural differences are appreciated, recognized, respected and understood. We shall hold each other accountable to demonstrate diligence in recognizing and respecting differing behaviors, perspectives and worldviews. In addition, in scheduling assignments, I have attempted to avoid conflicts with major religious/cultural holidays. If, however, I have inadvertently scheduled a major deadline that creates a conflict with your religious/cultural observances, please let me know as soon as possible so that we can make other arrangements.

**Collaboration:** University policy states that, unless otherwise specified, students may not collaborate on graded material. Any exceptions to this policy will be stated explicitly for individual assignments. If you have any questions about the limits of collaboration, you are expected to ask for clarification.

**Copyright Notice for Course Materials:** U.S. copyright laws protect this syllabus, course presentations, all Blackboard™ materials and any other course materials provided throughout this term. Students enrolled in the course may use materials for their own research and educational purposes within the Educational Fair Use policy of the U.S. Copyright Office. However, reproducing, selling or otherwise distributing these materials in any manner or medium without written permission of the copyright owner is expressly prohibited.

Electronic video and/or audio recording is not permitted during class/lab unless the student obtains written permission from the instructor. If permission is granted, any distribution of the recording is prohibited.

**Course Communication:** Communication is a two-way interaction. Students are encouraged to stop by my office during posted office hours to ask questions, check-in or simply say hello. I also encourage you to call (phone number listed on p. 1) or email (also listed on p. 1). During the work week, I will check email multiple times through the day and will commit to responding to your communication within 48 hours. I request the same commitment from you.



As a part of course communication, all course members will be participating in the *Connecting with Students for Success* initiative at SRSU with the purpose of engaging students for academic, individual and professional success. As a part of this initiative, each student will be required to meet with me individually at least once by no later than Monday, October 21. I will be reaching out to you during Week 4 to begin scheduling appointments. Additionally, each student will be strongly encouraged to complete a survey related to the CwSfS initiative between Oct 28-Nov 11. Both the individual meeting and the survey provide opportunity for bonus points.

**Evaluation Components:**

Attendance: Attendance will be recorded for each class and lab session.

Lab Practicum Final: The Lab final will be in practicum format to include identifying electrical tools/equipment, troubleshooting electrical circuits, solving practical electric problems.

Lab Problem Sets: Students will be expected to complete eight (8) problem sets in lab. Problem sets may be developed from any of the lab topics. Due dates for problem sets will be provided with each assignment.

Lecture Examinations: (three one-hour exams and the final). Components of the lecture examinations represent different types of test items including, but not limited to, defining, multiple choice, T/F, short answer, problem solving and essay. You will be given the opportunity to make some decisions on which test items to respond to. The final examination will be comprehensive. Unless prior arrangements are made with the instructor, students will not be allowed to take exams at other than the specified date and time. The lowest exam score, excluding the final, will be dropped.

<b>Evaluation Points</b>		<b>Evaluation Scale</b>
Lab Problem Sets (8 @ 50 points each)	400 pts	1000-900 points = A
Exams (3 @ 100 pts – drop lowest)	200 pts	899-800 points = B
Final Exam	150 pts	799-700 points = C
Lab Practicum Final	150 pts	699-600 points = D
Lecture Attendance	50 pts	<600 points = F
Lab Attendance	50 pts	
<b>TOTAL</b>	<b>1000 pts</b>	

**Library Information:** The Bryan Wildenthal Memorial Library and Archives of the Big Bend in Alpine offers FREE resources and services to the entire SRSU community. Access and borrow books, articles, and more by visiting the library’s website, [library.sulross.edu](http://library.sulross.edu). Off-campus access requires logging in with your LoboID and password. Librarians are a tremendous resource for your coursework and can be reached in person, by email ([srsulibrary@sulross.edu](mailto:srsulibrary@sulross.edu)), or phone (432-837-8123).

**Marketable Skills:** Students successfully completing the course will gain the following marketable skills, as defined in the SRSU Agriculture BS program:

3. Students demonstrate understanding of the implications of new information for both current and future problem-solving and decision-making;
4. Students use logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions and approaches to problems;
5. Students identify complex problems and review related information to develop and evaluate options and implement solutions.

**Plagiarism:** Paraphrasing or quoting another's work without citing the source is a form of academic misconduct. Even inadvertent or unintentional misuse or appropriation of another's work (such as relying heavily on source material that is not expressly acknowledged) is considered plagiarism. If you have any questions about using and citing sources, you are expected to ask for clarification.

**Shared Expectations:**

**You can expect me to:**

- Provide learning opportunities that advance your knowledge and development in agricultural education.
- Be available to answer questions and provide assistance related to the course.
- Be fair in my grading and assessment of your work.
- Provide you with timely, constructive feedback on your work.
- Enjoy this class!

**I will expect you to:**

- Complete all assignments thoroughly, in a timely manner.
- Look at each assignment as an occasion for you to learn, and make the most of every learning opportunity.
- Be honest and submit your own original work.
- Participate in class discussions and activities; this helps you as well as all of your classmates.
- Enjoy this class!

**Student Demeanor:** Sul Ross State University expects all students to conduct themselves as honest, responsible and law-abiding members of the academic community and to respect the rights of other students, members of the faculty and staff and the public to use, enjoy and participate in the University programs and facilities. For additional information, reference the [SRSU Student Handbook](#).

Students are full partners in fostering a classroom environment conducive to learning. In order to assure that all students have the opportunity to gain from time spent in class; students are prohibited from engaging in any form of behavior that detracts from the learning experience of fellow students. Inappropriate behavior will result in a request for the offending student to leave class. Opposing perspectives are welcomed and encouraged. Nevertheless, class participants are expected to treat one another with the respect and dignity to which all community members are entitled. Nothing less than such democratic behavior will be acceptable. All SRSU community members will demonstrate diligence in understanding how peoples' perspectives, behaviors, and worldviews enhance us all as individuals and as a community.

Hands-on participation is essential for successful completion of this course; therefore, each class member must come prepared, both physically and mentally, to take part in each class activity. Other specific classroom rules will be discussed as appropriate.

General Rules for Classroom:

1. No food will be allowed in the classroom/lab.
2. You may bring a drink with an appropriate lid to class/lab. This privilege WILL be suspended if abused.
3. Refrain from using tobacco products in the classroom/lab
4. Appropriate attire, including PPE, is required .
5. Cell phones, tablets, laptops and other devices used for class involvement are encouraged.

**Student Learning Outcomes (SACSCOC)**

1. Students will demonstrate basic skills of analyzing and interpreting research-based information;
2. Students will apply critical thinking skills.
3. Students will demonstrate the ability to communicate through written, spoken and graphic media.

**Student Records:** All records related to this course are confidential and will not be shared with anyone, without a signed, written release. If you wish to have information from your records shared with others, you must provide written request/authorization to the instructor. Before giving such authorization, you should understand the purpose of the release and to whom and for how long the information is authorized for release.

**Student Wellness:** SRSU strives to create a culture of support and recognizes that your mental health and wellness are equally as important as your physical health. We want you to know it is OK if you experience difficulty, and there are several resources on campus to help you succeed emotionally, personally, and academically. Please know that if you choose to confide in me, I am required by the university to report to the Title IX Coordinator, as SRSU and I want to ensure you are connected with all the support the university can offer. You are not required to respond to outreach from the university if you do not want to do so. You can also make a report yourself, including an anonymous report, through the [SRSU Title IX Report Form](#).

**TEA AFNR Educator Standards applicable in this course:**

Standard I: The AFNR teacher understands the scope of agriculture and the foundations of agricultural education and applies the process of scientific discovery to the various disciplines of agriculture;

Standard VII: The AFNR teacher has a basic understanding of emerging technologies and understands the use of information technologies in the AFNR industries;

Standard VIII: The AFNR teacher understands and applies knowledge of environmental systems, natural resource management, and the effects of agriculture, energy and food processing on the environment;

Standard IX: The AFNR teacher knows how to organize and manage an effective agriculture, food and natural resources program and how to work with school, community and industry representatives to support the program.

**IT 3301 Planned Course Schedule**

Week	Date	Lecture Topic and Preparation	Lab Topic/Assignments
1	8/26	Electrons, Negative Charges and Coulombs	Working Safely with Electricity
	8/28	Review Syllabus and Assignments	
2	9/2	Labor Day Holiday – No Class or Lab	
	9/4	Ohms Law	
3	9/9	Power and Energy BB FFA GH Conference – SALE Arena	Working with Ohm's Law/ Problems
	9/11	Power Factor & Voltage Drop	
4	9/16	Current Types	Using a Multimeter/exam review
	9/18	<b>Exam 1</b>	
5	9/23	Conductors	Circuit calculations/
	9/25	Selecting Conductors	
6	9/30	Single Phase or Three Phase Power	Selecting Conductors Wiring a Duplex Receptacle and Single Pole Switch
	10/2	Series Circuits	
7	10/7	Parallel Circuits	Wiring Dimmers and GFCI
	10/9	Circuit Protection	
8	10/14	Planning Circuits – Service, Feeder, Branch	Wiring 3-way and 4-way switches
	10/16	Sizing Service for Building Demand	
9	10/21	<b>Exam 2</b>	Planning and sizing circuits
	10/23	Electrical Generation	
10	10/28	Power Grids and Electrical Transfer	Solar Generated Electricity
	10/30	Magnets and Simple Motors	
11	11/4	Inducing current	Motor Construction/Disassembly and Reassembly of Motors
	11/6	Parts of Motors	
12	11/11	Types of Motors	Manipulating Motor Speed & Direction
	11/13	Motor application	
13	11/18	BB FFA LDE Facilitation (bonus points for helping)	
	11/20	<b>Exam 3</b>	
14	11/25	Selecting Motors to fit the job	Troubleshooting motor operation
	11/27	Thanksgiving Holiday	
15	12/2	Agricultural Electrical Applications	<b>Lab Practicum Final</b>
	12/4	Final Exam Review	
	12/10	<b>Lecture Final 8:00-10:00 AM</b>	