

AOM 4444C
Electrical Power and Instrumentation for Agricultural Operations Management
Agricultural Operations Management
The University of Florida

Spring 2018 MWF 2nd period, Room 110 Frazier Rogers Hall

Instructor: Dr. Wendell A. Porter, P.E.
Lecturer and Undergraduate Advisor
Rogers Hall, Rm 113, 352-392-1864 x113
Office hours: Open door and by appointment

Catalog Description

Fundamental concepts of electricity, power, instrumentation, computer control operations and selected transducers. Foundation to aid in management of agricultural processing operations. Credit: 3 hours

Pre-requisites/Co-requisites:

MAC1147, or equivalent, PHY2004, or equivalent, or instructor approval

Course Objectives

This course introduces the student to the electrical concepts, circuits and systems that are used throughout agriculture. Topics covered include circuits, power, motors, instrumentation, control, measurements and computers. The intention of the course is to provide the student with a foundation in electrical systems sufficient to allow them to make informed decisions in the management of agricultural operations.

Course Outline

1. Module 1: Introduction and Electrical Review
2. Module 2: The Grid and Electricity Transmission.
3. Module 3: Farmstead Design
4. Module 4: Homestead Design
5. Module 5: Emergency Power and Generators
6. Module 6: Rate Analysis: Residential and Commercial
7. Module 7: Renewable Energy
8. Module 8: Micro-grids
9. Module 9: Instrumentation
10. Module 10: Presentations

Texts: Fundamentals of Electricity for Agricultural, 4th Edition, 2004, Gustafson, Robert J., and Mark T. Morgan, American Society of Agricultural Engineers, St. Joseph, Michigan. Text is provided on-line, selected chapters and sections.

Grading

| | | |
|---------------|-------------------|---------|
| Tests: | 3 @ 100 pts each | 300 pts |
| Homework: | 15 @ 10 pts each | 150 pts |
| Attendance: | 20 @ 2.5 pts each | 50 pts |
| Presentation: | | 50 pts |
| Total points | | 550 pts |

UF grading policy can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

| | | |
|-------------|---|----|
| 550-517 pts | = | A |
| 516-495 | = | A- |
| 494-481 | = | B+ |
| 480-453 | = | B |
| 452-440 | = | B- |
| 439-426 | = | C+ |
| 425-398 | = | C |
| 397-382 | = | C- |
| 381-371 | = | D+ |
| 370-343 | = | D |
| 342-327 | = | D- |
| <326 | = | E |

Homework will be due on or before the date assigned in class. Late work will not be accepted without prior approval. A penalty of 10% per class period will be assessed for late assignments without approval. **Class participation is expected.**

General Requirements

1. Many assignments, whether homework or projects, will be due on a given date. Late assignments will lose points in grade for each day late. Missed exams may be rescheduled only with proper documented excuses within **one week** of the original date given.
2. There is no cumulative final exam. The last exam is given in the last class of the semester.

Grades and Grade Points

For information on current UF policies for assigning grade points, see

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Academic Honesty

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: "*We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.*" You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: "*On my honor, I have neither given nor received unauthorized aid in doing this assignment.*"

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/scsr/process/student-conduct-honor-code>.

Software Use:

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Services for Students with Disabilities

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation

0001 Reid Hall, 352-392-8565, www.dso.ufl.edu/drc/

Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu/cwc/*
 - Counseling Services
 - Groups and Workshops
 - Outreach and Consultation
 - Self-Help Library
 - Wellness Coaching
- U Matter We Care, www.umatter.ufl.edu/
- *Career Resource Center, First Floor JWRU, 392-1601, www.crc.ufl.edu/*

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