SIUC AVT 422 - Spring 2016
Tentative information. This info may change with notice.

Basic Info:

Lecture W 3:00-4:50
Lab TH 10:00-11:50
Instructor: Don Morris
Room: Lecture 117, Lab 132
Office: TEC Building, Room 226C
Office Phone: 618-453-9262
Email: dmorris@siu.edu
Text (for attendance) 618-303-5898
Office Hours: T 10:00-2:00 and TH 12:00 to 2:00 or by appointment
Virtual office hours by email
Textbooks: NEETS - Provided digitally
Recommended - “Introduction to Airborne Radar, 2nd Ed. G. Stimson.” This is what I will be studying and working from.

Course Description:

Aviation Radar Systems: Introduces the student to applications of airborne radar equipment, including weather detection and tracking. The student will gain an understanding of installation techniques, system performance specification, operational analysis and troubleshooting.


Tools:

You are expected to come to class and lab on time and ready to learn. Part of this means that you will bring the appropriate tools. For this class, that includes a digital multimeter.

Safety:

This class involves things that cook you and your neighbor. In addition to merely killing them painfully, you could also sterilize them. We don’t want that to happen. You will follow guidelines, and pay attention. No horseplay will be tolerated.

Tests:

All tests for this class will be open book, open note. However, you will not be allowed to use digital devices during tests other than a calculator. We will plan to have 3 regular tests during the course. Tests will typically be in the second hour of the lecture section.
# Lecture Topics, Labs, and Tentative Schedule

<table>
<thead>
<tr>
<th>wk</th>
<th>Lecture</th>
<th>Projects (Not necessarily in order)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Intro to Class. The Physics of Waves. Intro to Radar. The Magnetron.</td>
<td>1 Schmidt Trigger</td>
</tr>
<tr>
<td>2</td>
<td>Radar Applications</td>
<td>2 The 555 Timer</td>
</tr>
<tr>
<td>3</td>
<td>Radio Waves and AC Signals</td>
<td>3 The 555 Timer as an Oscillator</td>
</tr>
<tr>
<td>4</td>
<td>Decibels and Frequencies</td>
<td>4 Crystal Controlled Oscillator</td>
</tr>
<tr>
<td>5</td>
<td>Angle of Operation and Pulsed Radar</td>
<td>5 The Operational Amplifier</td>
</tr>
<tr>
<td>6</td>
<td>Detection range and ambiguity</td>
<td>6 The 741 OPAMP as an Oscillator</td>
</tr>
<tr>
<td>7</td>
<td>FM ranging</td>
<td>7 MIT Coffee Can Radar Intro</td>
</tr>
<tr>
<td>8</td>
<td>Doppler Effect</td>
<td>8 Coffee Can Radar Data Processing</td>
</tr>
<tr>
<td>9</td>
<td>Pulsed Spectrum</td>
<td>9 Test Equipment Familiarization</td>
</tr>
<tr>
<td>10</td>
<td>Sensing Doppler Frequencies</td>
<td>10 Bendix-King KWX 56 Weather Radar System</td>
</tr>
<tr>
<td>11</td>
<td>Digital Filters</td>
<td>11 Radar Maintenance and Safety Procedures</td>
</tr>
<tr>
<td>12</td>
<td>More Digital Filters</td>
<td>12 Lear 24D Ops Check Primus 400 Radar</td>
</tr>
<tr>
<td>13</td>
<td>Ground Returns</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Separating moving targets</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>???.</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Final</td>
<td></td>
</tr>
</tbody>
</table>
My Attendance Policy

In my experience, attendance is the single biggest predictor of failure or success. Even though this is not an FAA class, the department attendance policy will be followed. I will be strict on attendance this year.

Unless you can provide medical documentation that you are unconscious, any no-show will be unexcused. If you are experiencing an emergency, you may notify me via email, text, or voice mail. Unscheduled medical will be excused with a copy of a doctor’s excuse (a walk out statement is not an excuse).

In order to be excused, you must speak with me personally. You will need to provide excuse documentation and makeup work within 2 weeks. Otherwise the time can not be made up.

Online Classroom:

This class will use the Desire 2 Learn online classroom management system (online.siu.edu) for communication. Your grades and attendance will be posted online. You may view and review them at any time. Monitoring your grades and your attendance is YOUR responsibility.

Attendance will be noted:

- P: Student was Present. Grade reduction unless Excused w/in 2 weeks.
- -1: Student missed an hour. Grade reduction unless Excused w/in 2 weeks.
- -2: Student missed two hours. Grade reduction unless Excused w/in 2 weeks.
- T: Tardy. Three T’s count for one AU. Cannot be made up.

Your instructor will often use emails to communicate with you. Make sure that your registered email is up to date, and that you monitor it regularly.

Classroom Conduct:

You aren’t freshmen anymore. You know the expectations. Live up to them.

Grading:

<table>
<thead>
<tr>
<th>Grade</th>
<th>90 - 100</th>
<th>80 - 89</th>
<th>70 - 79</th>
<th>60 - 69</th>
<th>&lt; 60</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>F</td>
<td></td>
</tr>
</tbody>
</table>

This is not an FAA class, and so I will begin the class by “suggesting” that the above scale will be followed. I will promise that I will not grade harder than this, but reserve the right to redefine letter grades in a more inclusive fashion if I decide to do so at the end of the semester.
Syllabus Attachment

Spring 2016

http://pvcaa.siu.edu/

IMPORTANT DATES *
Semester Class Begins .......................................................... 01/19/2016
Last day to add a class (without instructor permission) ............... 01/24/2016
Last day to withdraw completely and receive a 100% refund .......... 03/11/2016
Last day to drop a course using SalukiNet: ............................... 04/03/2016
Last day to file diploma application (for name to appear in Commencement program): ...................................................... 02/12/2016
Final examinations: .............................................................. 05/09–05/13/2016

Note: For outreach, internet, and short course drop/add dates, visit Registrar’s Academic webpage: http://registrar.siu.edu/

SPRING SEMESTER HOLIDAYS
Marin Luther King, Jr.'s Birthday Holiday 01/18/2016
Spring Break 03/12—03/20/2016

WITHDRAWAL POLICY ~ Undergraduate only
Students who officially register for a session may not withdraw merely by the stopping of attendance. An official withdrawal form needs to be initiated by the student and processed by the University. For the proper procedures to follow when dropping courses and when withdrawing from the University, please visit http://registrar.siu.edu/catalog/undergraduatemain.html

INCOMPLETE POLICY ~ Undergraduate only
An INC is assigned when, for reasons beyond their control, students engaged in passing work are unable to complete all class assignments. An INC must be changed to a completed grade within one semester following the term in which the course was taken, or graduation, whichever occurs first. Should the student fail to complete the course within the time period designated, that is, no later than the end of the semester following the term in which the course was taken, or graduation, whichever occurs first, the incomplete will be converted to a grade of F and the grade will be computed in the student's grade point average. For more information please visit: http://registrar.siu.edu/grades/incomplete.html

REPEAT POLICY
An undergraduate student may, for the purpose of raising a grade, enroll in a course for credit no more than two times (two total enrollments) unless otherwise noted in the course description. For students receiving a letter grade of A,B,C,D, or F, the course repetition must occur at Southern Illinois University Carbondale. Only the most recent (last) grade will be calculated in the overall GPA and count toward hours earned. See full policy at http://registrar.siu.edu/catalog/undergraduatemain.html

GRADUATE POLICIES
Graduate policies often vary from Undergraduate policies. To view the applicable policies for graduate students, please visit http://gradschool.siu.edu/about-us/grad-catalog/index.html

DISABILITY POLICY
Disability Support Services provides the required academic and programmatic support services to students with permanent and temporary disabilities. DSS provides centralized coordination and referral services. To utilize DSS services, students must come to the DSS to open cases. The process involves interviews, reviews of student-supplied documentation, and completion of Disability Accommodation Agreements. http://disabilityservices.siu.edu/

PLAGIARISM
Student Conduct Code http://ar.siu.edu/student_conduct_code/

MORRIS LIBRARY HOURS
http://www.lib.siu.edu/about

SAFETY AWARENESS FACTS AND EDUCATION
Title IX makes it clear that violence and harassment based on sex and gender is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources here: http://safe.siu.edu

SALUKI CARES
The purpose of Saluki Cares is to develop, facilitate and coordinate a university-wide program of care and support for students in any type of distress—physical, emotional, financial, or personal. By working closely with faculty, staff, students and their families, SIU will continue to display a culture of care and demonstrate to our students and their families that they are an important part of the community. For Information on Saluki Cares: (618) 453-5714, or siucares@siu.edu, http://salukicares.siu.edu/index.html

EMERGENCY PROCEDURES
Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. We ask that you become familiar with the SIU Emergency Response Plan and Building Emergency Response Team (BERT) programs. Emergency response information is available on posters in buildings on campus, available on BERT’s website at www.bert.siu.edu, Department of Safety’s website at www.dps.siu.edu (disaster drop down) and the Emergency Response Guideline pamphlet. Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency.

INCLUSIVE EXCELLENCE
SIU contains people from all walks of life, from many different cultures and sub-cultures, and representing all strata of society, nationalities, ethnicities, lifestyles, and affiliations. Learning from and working with people who differ is an important part of education as well as an essential preparation for any career. For more information please visit: http://www.industreequality.siu.edu/

LEARNING AND SUPPORT SERVICES
Help is within reach. Learning support services offers free tutoring on campus and math labs. To find more information please visit the Center for Learning and Support Services website;

Tutoring: http://tutoring.siu.edu/
Math Labs http://math.siu.edu/courses/course-help.php

WRITING CENTER
The Writing Center offers free tutoring services to all SIU students and faculty. To find a Center or Schedule an appointment please visit http://write.siu.edu/

AFFIRMATIVE ACTION & EQUAL OPPORTUNITY
Our office's main focus is to ensure that the university complies with federal and state equity policies and handles reporting and investigating of discrimination cases. For more information visit: http://diversity.siu.edu/

Additional Resources Available:

SALUKINET: https://salukinet.siu.edu/ep/home/displaylogin

ADVISEMENT: http://advisement.siu.edu/

PROVOST & VICE CHANCELLOR: http://pvcaa.siu.edu/

SIU ONLINE: http://online.siu.edu/

Spring 2016 R.O’Driscoll