



UNIVERSITY OF
CENTRAL FLORIDA

OSE 4410L - OPTOELECTRONICS LABORATORY

Section: 0001

Optics and Photonics

Course Information

Term: Spring 2025

Class Meeting Days: W

Class Meeting Time: 12:00PM - 02:50PM

Class Meeting Location: CROL A210

Modality: P

Credit Hours: 1.00

Instructor Information

Andrew Klein

Title: Graduate Teaching Associate

Office Location: 251

Office Hours:

By Appointment

Email: Andrew.Klein@ucf.edu

Teaching Assistants

Steven Silverio

steven.silverio@ucf.edu

Course Description

OSE 4410L OPT- 1(0,3)Optoelectronics Laboratory: CR: OSE 4410. Experiments in the basics of semiconductor optoelectronic devices including photodiodes, light-emitting diodes, laser diodes, CCDs. Applications include solar cells, displays, photodetection, and optical communications. Spring.

This lab course is associated with the theory course (OSE 4410) on the principles, design, and applications of optoelectronic devices. Basic specifications of key optoelectronic devices, including photodiodes, LightEmitting Diodes (LEDs), diode lasers, LED and Liquid Crystal Displays are experimentally studied by the students. The experiments include both DC (static) and AC (dynamic) characteristics of the devices and emphasize both the electrical and optical figures of merit. The advantages and disadvantages of various types of photodetectors and light sources are experimentally and quantitatively studied in the lab.

Student Learning Outcomes

In accordance with Student Learning Outcome 6.1, after successful completion of this course, students will be able to:

- Develop and conduct appropriate experimentation
- Analyze and Interpret data
- Use engineering judgment to draw conclusions

Course Materials and Resources

Lab Notes

Optoelectronics and Photonics: Principles and Practices

Authors: S. O. Kasap

Publisher: Prentice Hall

Publication Date: 2001

Course Assessment and Grading Procedure

The course grade will be out a total of 100 points, broken down as follows:

- Attendance: 2 points for full attendance of every lab session (9) plus open lab for the final project (1, total 10 sessions). Late arrival 5-20 minutes will result in a 1 point deduction, greater than 20 minutes will result in a 2 point deduction. total of 20 points.
- Lab Report: A short report must be submitted by each student after the end of select labs. The report should contain an summary of experimental procedure, data tables/figures, data analysis, and answers to in-lab questions. Experimental data can be shared among group members, but the analysis and submission must be your own work. Each of the 6 labs will be worth 5 points, for a total of 30 points.
- Lab Paper: A 2 page paper must be submitted by each student after the end of select two-part labs. The paper should include an abstract, thesis statement, summary of experimental procedure, data tables/figures, data analysis, conclusions and discussion. Experimental data can be shared among group members, but the analysis and submission must be your own work. Each of the 3 papers will be worth 5 points, for a total of 15 points. One bonus point will be available for each paper for exceptional submission.
- Final Project: There will be a final paper describing the design and characterization of an optical transmitter/receiver, in the style of an Optics Letter. This assignment carries a total of 35 points. 5 of those points will be for submission of an initial outline, 5 will be for early submission of planned figures, and 25 will be for the final submission.

Assignment Schedule

Due Date	Assignment Name	Assignment Type	Points
	Roll Call Attendance	Assignment	20
	Lab Reports (6)	Lab Report	30 (5 Each)
	Lab Papers (3)	Lab Paper	15 (5 Each)

Due Date	Assignment Name	Assignment Type	Points
	Design Check	Final Project	5
	Live Demonstration	Final Project	5
	Paper - Optics Letter	Final Project	25
2/7/25	Lab Report: LD Part 1	Assignment	5
2/17/25	Lab Paper: LD	Assignment	5
	Prelab Quiz: Photoconductor	Assignment	1

Grading Scale

Letter Grade	Percentage
A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	0-59%

Policies for Course Grade

Makeup Work Policy

Make-up Lab due to Emergency Reason - If an emergency arises and a student cannot attend a Lab on the scheduled date, the student must notify the instructor no less than 24 hours before the scheduled date and no more than 48 hours after the scheduled date. A make-up lab session will be arranged if official documents regarding the emergency are submitted to the instructor. The instructor will specify a new due date for submitting the report of the make-up lab. The late submission rule of section 4.2 will apply if the student fails to submit the report by the new due date. Any illness will be considered a medical emergency only if a doctor's letter, which confirms the illness, is submitted to the

instructor as an official document within the time mentioned in this section. Zero credit will be given for the lab without official documents.

Missed/Late Assignments

Late Submission of Report due to Emergency Reason - If an emergency arises and a student cannot submit assigned work on or before the scheduled due date, the student must notify the instructor no less than 24 hours before the scheduled date and no more than 48 hours after the scheduled date. The instructor will specify a new due date for submitting the report after receiving official documents from the student. The late submission rule of section 4.2 will apply if the student fails to submit the report by the new due date. Any illness will be considered a medical emergency only if a doctor's letter, which confirms the illness, is submitted to the instructor as an official document within the time mentioned in this section. Zero credit will be given for the lab without official documents.

Late Assignment submissions which occur without an emergency reason will be deducted according to the following guidelines:

- 1 point deduction for submission after the deadline, but BEFORE the next lab period, in addition to deductions from regular grading.
- 2 point deduction for submission after the deadline, and AFTER the following lab period, in addition to deductions from regular grading.

Submissions more than 1 week late will receive a grade of 0. This grace period is not applicable to the Final Paper.

Attendance

A student showing up 5-20 minutes late will be deducted 1 point from the day's attendance score. A student showing up greater than 20 minutes late will receive no credit for the day's attendance score, but may still complete the lab.

Course Accessibility

The University of Central Florida is committed to providing access and inclusion for all persons with disabilities. Students with disabilities who need access to course content

due to course design limitations should contact the professor as soon as possible. Students should also connect with [Student Accessibility Services \(SAS\)](#) (Ferrell Commons 185, sas@ucf.edu, phone 407-823-2371). For students connected with SAS, a Course Accessibility Letter may be created and sent to professors, which informs faculty of potential course access and accommodations that might be necessary and reasonable. Determining reasonable access and accommodations requires consideration of the course design, course learning objectives and the individual academic and course barriers experienced by the student. Further conversation with SAS, faculty and the student may be warranted to ensure an accessible course experience.

Academic Integrity

Students should familiarize themselves with UCF's Code of Conduct at [Student Conduct and Integrity Office](#). According to Section 1, "Academic Misconduct," students are prohibited from engaging in:

- a. Academic misconduct is defined as any submitted work or behavior that obstructs the instructor of record's ability to accurately assess the student's understanding or completion of the course materials or degree requirements (e.g., assignment, quiz, and/or exam). Examples of academic misconduct include but are not limited to: plagiarism, unauthorized assistance to complete an academic exercise; unauthorized communication with others during an examination, course assignment, or project; falsifying or misrepresenting academic work; providing misleading information to create a personal advantage to complete course/degree requirements; or multiple submission(s) of academic work without permission of the instructor of record.
- b. Any student who knowingly helps another violate academic behavior standards is also in violation of the standards.
- c. Commercial Use of Academic Material. Selling of course material to another person and/or uploading course material to a third-party vendor without authorization or without the express written permission of the University and the instructor of record. Course materials include but are not limited to class notes, the instructor of record's slide deck, tests, quizzes, labs, instruction sheets, homework, study guides, and handouts.

- d. Soliciting assistance with academic coursework and/or degree requirements. The solicitation of assistance with an assignment, lab, quiz, test, paper, etc., without authorization of the instructor of record or designee is prohibited. This includes but is not limited to asking for answers to a quiz, trading answers, or offering to pay another to complete an assignment. It is considered Academic Misconduct to solicit assistance with academic coursework and/or degree requirements, even if the solicitation did not yield actual assistance (for example, if there was no response to the solicitation).

Responses to Academic Dishonesty, Plagiarism, or Cheating

Students should also familiarize themselves with the procedures for academic misconduct in UCF's student handbook, [The Golden Rule](#). UCF faculty members have a responsibility for students' education and the value of a UCF degree, and so seek to prevent unethical behavior and respond to academic misconduct when necessary. Penalties for violating rules, policies, and instructions within this course can range from a zero on the exercise to an "F" letter grade in the course. In addition, an Academic Misconduct report could be filed with the Office of Student Conduct and Academic Integrity, which could lead to disciplinary warning, disciplinary probation, or deferred suspension or separation from the University through suspension, dismissal, or expulsion with the addition of a "Z" designation on one's transcript.

Being found in violation of academic conduct standards could result in a student having to disclose such behavior on a graduate school application, being removed from a leadership position within a student organization, the recipient of scholarships, participation in University activities such as study abroad, internships, etc.

Let's avoid all of this by demonstrating values of honesty, trust, and integrity. No grade is worth compromising your integrity and moving your moral compass. Stay true to doing the right thing: take the zero, not a shortcut.

Title IX

Title IX prohibits sex discrimination, including sexual misconduct, sexual violence, sexual harassment, and retaliation. If you or someone you know has been harassed or assaulted, you can find resources available to support the victim, including confidential

resources and information concerning reporting options at [Let's Be Clear](#) and [UCF Cares](#).

For more information on diversity and inclusion, Title IX, accessibility, or UCF's complaint processes contact:

- Title IX – OIE – [Office of Institutional Equity](#) & askanadvocate@ucf.edu
- Disability Accommodation – Student Accessibility Services – [Student Accessibility Services](#) & sas@ucf.edu
- [Access and Community Engagement](#) (including the Ginsberg Center for Inclusion and Community Engagement, Military and Veteran Student Success, and HSI Initiatives)
- UCF Compliance and Ethics Office – [Compliance, Ethics, and Risk Office](#) & complianceandethics@ucf.edu
- The [Ombuds Office](#) is a safe place to discuss concerns.

Reporting an Incident or Issue

If you believe you have experienced abusive or discriminatory behavior by any faculty or staff member, contact the Office of Institutional Equity [online](#) or at 407-823-1336. You can also choose to report using the UCF Integrity Line and can report anonymously or as yourself at 1-855-877-6049 or using the [online form](#). UCF cares about you and takes every report seriously. For more information see the [Reporting an Incident or Issue Webpage](#).

Deployed Active-Duty Military Students

Students who are deployed active duty military and/or National Guard personnel and require accommodation should contact their instructors as soon as possible after the semester begins and/or after they receive notification of deployment to make related arrangements.

Campus Safety

At UCF Public Safety and Police, safety is the top priority. Emergencies on campus are rare, but if one should arise, it's important to be familiar with some basic safety and security concepts.

- In an emergency, always dial 911.
- Every UCF classroom has an **Emergency Procedure Guide** posted on a wall near the door, which will show you how to respond to a variety of situations. This guide can also be found online [here](#).
- In the event of an active threat, remember **AVOID, DENY, DEFEND**. Choose the best course of action and act immediately. Watch the video [here](#) to learn more.
 - **AVOID**. Pay attention to your surroundings and have an exit plan. Get as much distance and as many barriers between you and the threat as quickly as possible.
 - **DENY**. When avoiding is difficult or impossible, deny the threat access to you and your space. Lockdown by creating barriers, turning the lights off and remaining quiet and out of sight. Make sure your cell phone is silenced, but do not turn it off.
 - **DEFEND**. When you are unable to put distance between yourself and the threat, be prepared to protect yourself. Commit to your actions, be aggressive and do not fight fairly. Do whatever it takes to survive.
- For emergencies on campus, UCF will utilize the [UCF Alert](#) system. All UCF students, faculty and staff are automatically enrolled to receive these email and text alerts, however, it's a good idea to frequently ensure your [contact information is up to date](#).

Financial Aid Accountability

All instructors/faculty are required to document students' academic activity at the beginning of each course. In order to document that you began this course, please complete this activity by the end of the first week of classes or as soon as possible after adding the course. Failure to do so may result in a delay in the disbursement of your financial aid.

Class Schedule

Week	Topic	Date	Assignment Due
0	Week 0 - RC Circuit	1/8	1/10: Academic Activity
1	LED Part 1	1/15	
2	LED Part 2	1/22	1/24: LED Part 1 Report
3	LD Part 1	1/29	1/31: LED Paper
4	LD Part 2	2/5	2/7: LD Part 1 Report
5	PC/PD Part 1	2/12	2/14 LD Paper
6	PC/PD Part 2	2/19	2/21: PC Report
7	Solar Cell	2/26	2/28: PC/PD Paper
8	Digital Display	3/5	3/7: Solar Cell Report
9	Audio Transmitter/Receiver	3/12	3/14: Digital Display Report
10	Spring Break (NO LAB)	3/19	
11	Open Lab: Optical Transmitter and Receiver (Final Project)	3/26	3/28: Audio T/R Report
12		4/2	4/4: Design Check
13		4/9	
14		4/16	4/18 or earlier: Demo
15	Final Paper Due Date	4/23	Final Paper